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INSTITUTE OF STATISTICS
Monograph No. 2

The Industrialisation of Backward Areas

BY
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FOREWORD

WHEN this enquiry into the problems of industrialisation was begun, it was part of a wider research project on problems of international reconstruction, initiated by a Joint Committee of Nuffield College and the Institute of Statistics. The greater part of the Committee's work, touching upon many aspects of international reconstruction, was privately circulated to Allied economists and interested departments, and served as a documentary basis for a number of conferences on European post-war problems.

The following study deals with a special set of European problems: the industrialisation of the over-populated and backward areas of eastern and south-eastern Europe, which were left virtually untouched by the vigorous industrial development of western Europe in the nineteenth and twentieth centuries. As a result the level of welfare and wealth falls at a steep gradient as one moves east from the River Elbe and south towards the Balkan Peninsula. Whatever the historical reasons for the development of 'depressed areas' in this region may have been, their present dilemma is an increase in population which, for lack of industrial development, is being driven into rural and urban occupations of very low productivity. The vicious circle of population pressure, poverty, and lack of industries is by no means confined to this corner of Europe; it is present in other European countries and is most clearly seen in the Far East. That south-eastern Europe was selected as an example is partly accidental, and partly due to the fact that material about conditions in south-eastern Europe is slightly more plentiful than that dealing with other over-populated areas, although it is far from being adequate for a study of this kind.

The first part of this monograph provides a theoretical discussion of the conditions needed and the mechanism of the process of industrialisation of backward areas. The second part gives a quantitative example of such a process, taking south-eastern Europe as the background. The author assumes a rate of industrialisation which would absorb into industrial employment the natural increase in population and the existing surplus population, within, say, a generation; he assumes also the specific kind of development which the region might undertake, having regard to the natural resources of the area. On this basis he determines the capital requirements for an initial five-year period and derives the production and demand structure of the newly indus-

trialised sector. The realistic material is worked in to show the order of magnitude of the changes in living standards, occupational distribution, and external economic relations which would result from such a form of large-scale and planned industrialisation. How difficult the process must be for the backward country, even if it receives considerable aid from abroad, becomes abundantly plain.

The hypothetical character of the study will be clear from the fact that only pre-war material is used, and no account is taken of the economic and political changes in the region during the war, when statistical information became even more scrappy than usual and practically unobtainable for researchers outside Government departments. Similarly, improvements in agriculture, which necessarily must accompany any practical industrialisation scheme in the area, are deliberately omitted from the discussion, partly because the problems of agricultural re-organisation of the area are mere examples, partly because it was thought that the essential features of the industrialisation process could be shown best by treating it in isolation.

The resulting models of the industrialisation process are therefore not blue-prints of practical development schemes for the area. They are hypothetical models in the sense that they are based on a number of broad and sometimes very bold assumptions about the nature and direction of the industrialisation, about consumption habits, efficiency factors and elasticities in the supply of skill. But they do throw into relief the quantitative aspects of a scheme of rapid industrialisation, and they do indicate the lines on which the plans for such a scheme must be thought out.

The author had the help of various research assistants who at different stages of the study participated in the collection of statistical material. The computations and tables of Part 2 were prepared, in close consultation with the author, by Mr. J. R. L. Schneider, assisted by Mr. C. Pridgeon. The responsibility for the whole mongraph rests, however, entirely with the author, and not with the research assistants nor with the Institute of Statistics, under whose auspices the study is published.

F. A. BURCHARDT

AUTHOR'S NOTE

The origin and purpose of this study have been explained in the Preface above. I should like to add my personal thanks for the help I have received from various researchers.

For about a year I was assisted by Mr. J. R. L. Schneider, who was in charge of the computations contained in Part 2. These computations often implied intricate decisions on methods where Mr. Schneider's help was invaluable. He was called up for national service in March, 1944, and had to abandon the work in a semi-finished stage.

The opportunity of discussing economic problems in the Institute of Statistics was of great value to me, and I am grateful to the Acting Director, Professor A. L. Bowley, for his friendly interest and his suggestions. I wish to thank particularly Mr. F. A. Burchardt to whom I could turn whenever I needed advice and criticism.

K. M.

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THE INDUSTRIALISATION OF BACKWARD AREAS

PART A

ECONOMIC PROBLEMS OF INDUSTRIALISATION

THE ECONOMIC CASE FOR INDUSTRIALISATION

THE progressive transfer of working population from agriculture to industry and services has been going on for a long time. This process is in line with certain basic economic trends. As technical advance raises incomes beyond a certain minimum, the proportion spent on food falls; the share of agriculture in total output is therefore bound to decline. Moreover, with increasing efficiency in agriculture fewer hands are needed to produce a given output. Rural income levels can in these conditions only be maintained or raised in step with industrial incomes, if the proportion of the population which is engaged in agriculture is reduced. It is a firmly established generalisation that for every great region of the world living standards tend to be the higher, the smaller the relative importance of agriculture as a field of employment.[1]

Measured by economic standards the shift away from the land has not yet gone far enough. For there is still a large discrepancy between *per capita* incomes earned in industry and agriculture, if we take the world as a whole. As long as this condition prevails there is an economic case for occupational adjustment. The discrepancy exists mainly because there are vast and densely crowded areas, such as China, India and Eastern Europe, where almost the whole active population has remained in agriculture, although the land offers productive and remunerative work only to part of this labour force. Industrial progress has by-passed these territories which between them contain over half the world's population. Large numbers in these areas eke out a precarious existence on submarginal land; others work better land with out-of-date tools, but even where yields per acre are not unduly low, yields per head

[1] Rich agricultural countries such as New Zealand, Australia, or the Argentine are no exception. The ratio of farm to total working population in these countries is far below the world average (which is probably around 60 per cent) and is steadily decreasing because of the expansion in service employment and also in manufacturing.

invariably are, because too many people share in this output. They are tied to the land, where in the absence of other outlets they participate in their family's income without contributing to it to any noticeable extent. An expanding population adds continually to the number of people who are forced to work on fragmented or overcrowded holdings and on inferior soil where their productivity is nil or almost nil (disguised unemployment). If these surplus workers were withdrawn from agriculture and absorbed into other occupations, farm output would not suffer, while the whole new output would be a net addition to the community's income. The economic case for the industrialisation of densely populated backward countries rests upon this mass phenomenon of disguised rural unemployment.

Agrarian overpopulation can, on certain assumptions, be estimated for some regions with a fair degree of accuracy. In this and the following study we shall refer to Eastern and South-Eastern Europe which includes Poland, Hungary, Bulgaria, Rumania, Yugoslavia, and Greece.[1] This region is neither the largest nor the poorest of the backward areas, but it can serve as a model presenting all the major problems with which we are concerned here. Available calculations, based on a comparison between existing and optimum population density on land, show that of a total active farm population in S.E. Europe of rather less than thirty millions between six and eight million active workers are superfluous and could be taken off the land without loss to agriculture. In the course of the next generation the area faces the prospect of a further increase by over 30 per cent in the number of people of working age who will add to the already heavy pressure on limited agricultural resources unless other opportunities can be found for their employment.

This pressure on the land could be relieved in theory by emigration as well as by industrialisation. Neither S.E. Europe nor India or China is as richly endowed with natural resources relative to their populations as, say, the United States, the British Dominions, or the U.S.S.R.[2] Under conditions of unrestricted and perfect mobility large numbers could be expected to emigrate from the poorer areas. These might then retain their predominantly agricultural character with the difference, however, that the people who stayed behind would be more fully occupied. Average incomes would rise automatically because inferior soil would be given up and output shared among fewer people; moreover improvements in agricultural organisation and technique might then be obtained more easily. But emigration on a scale sufficient to

[1] For the sake of simplicity we call this region from now on 'S.E. Europe.'

[2] Cf. the data given by A. J. Brown, *Industrialisation and Trade*, The Royal Institute of International Affairs, 1943, p. 21.

even out, within a reasonable period, the worst inequalities in *per capita* resources between different areas is in practice quite impossible. The alternative to it is to use on the spot the unemployed—or uneconomically employed—labour and such industrial resources as still await development.

Rationalisation of agriculture stands on a different plane, for it is in itself conditioned in these areas by industrial advance. The growth of industry in excess of the natural increase in population, by drawing surplus people from the land, would automatically raise agricultural output per head even in the absence of changes in land tenure, in crops, or in farming methods. It would provide the means for supplying agriculture with more power, better transport facilities, marketing, and similar services; and by increasing the number of income earners and hence the demand for (more valuable) food it would stimulate agriculture and, more specifically, mixed farming which in S.E. Europe seems the most economical use of the land.[1] The experience of those more advanced countries which in the earlier periods of their development faced similar problems of poverty illustrates the process by which agriculture is rationalised at the same time that an expanding industrial system absorbs parts of the rural labour force.[2]

If industry offers more scope than agriculture in these densely populated backward areas, why has it not been developed? Reference to the uneven spread over the earth of natural resources does not carry us very far. It is of course quite obvious that some populations, making full use of all the agricultural and industrial resources they have, can yet not attain the same standard of living as others who are better equipped—unless the former succeed in offsetting their natural disadvantage by specialisation and international trade. But the phenomenon we are discussing here is a different one. There are areas which possess many natural factors of industrialisation—water power, coal reserves, mineral deposits, and so forth—but have failed to utilise them at all, although their soil is patently insufficient to sustain the population.

This phenomenon can be attributed to the difficulties of making a beginning in countries which—for whatever reasons—have once been left behind. Social and political factors very largely determine the

[1] One great advantage of mixed farming would be the reduction in seasonal unemployment in agriculture which is very marked in S.E. Europe. The quantity of labour which can be used throughout the year is much larger in mixed farming than in grain production. The change over from the one to the other which would occur in conditions of industrial expansion seems a more effective way, in the long run, of combating large-scale seasonal unemployment than attempts at providing work supplementary to agriculture in the winter period.

[2] There are, of course, poor countries which require different development programmes. Agricultural improvements rank first where land resources are relatively plentiful but inadequately used, as it is the case in some colonies.

sequence in which different areas enter into the process of industrial advance. At the same time, in an open international system, advantages once gained tend to become cumulative and handicaps to be perpetuated so that in the end poor countries may remain poor just because they were poor to begin with. This tendency—or one aspect of it—was noted very early by Carey and List for example, and has been restated recently in terms of the concept of external economies.[1] In highly developed countries a new firm or industry will benefit from those cost-reducing services which an established industrial system supplies in the form of better transport facilities, training of workers, more highly organised labour and capital markets, and so forth. It is different in less advanced areas, where new enterprises, while conferring advantages on those to follow, have to incur costs and risks for which they are not compensated by external economies already in existence. Infant industries can reap these benefits only after a considerable period of development which, however, in an open world market is unlikely to materialise in the absence of State support. Moreover, where the established producers of the leading industrial countries have built up monopolistic positions and exercise price discrimination in international markets, newcomers are at an additional disadvantage. Stronger and more permanent measures of State assistance than are visualised by the classical infant industry argument will then be required to provide an effective shelter against the monopolistic competitor.[2]

At any rate, there is no reason why poor countries should accept as a datum a specialisation among regions which, since it is based on existing cost relationships, is rational only with regard to given conditions of under-development. These conditions may be summarised under the headings: Lack of Demand and Lack of Capital.

THE DEMAND FACTOR IN INDUSTRIALISATION

Assume that it is intended to speed up the rate of industrial progress in countries suffering from rural over-population. The first obstacle to be overcome is the lack of effective demand which is the most obvious deterrent in these countries to the establishment of large-scale industries. New enterprises would have been started already, perhaps by foreign capital, if profitable market outlets existed. There are two or three lines that a deliberate economic policy can follow in these conditions.

[1] Cf. T. de Scitovsky, 'A Reconsideration of the Theory of Tariffs,' *The Review of Economic Studies*, Vol. IX, No. 2.

[2] Cf. K W. Rothschild, 'The Small Nation and World Trade,' *The Economic Journal*, April, 1944.

An attempt may be made on the part of industrialising countries to produce at home goods previously imported (while keeping exports constant) or to foster new export industries to compete with established foreign firms. Both policies, which aim at capturing a larger share in existing markets, require some measure of 'artificial' help to industry; this must be so, for otherwise private enterprise would have discovered, and taken care of, these openings long ago. Furthermore there is always the possibility for the State to initiate the production of goods for which no effective demand need exist, either at home or abroad (public works).

We have seen that the protectionist method of fostering industrialisation can be justified by the infant industry argument. But there are certain limits to the success of this policy, quite independent of the instruments which are used, whether import tariffs, quotas, or subsidies. Suppose that home industries are established behind tariffs to replace former imports, where natural conditions permit, and that they extend their capacity to the point where they can meet the whole or almost the whole internal demand. Since, however, imports and consumption are small in economically backward countries, self-sufficiency may be reached by the relevant industries at a level of industrial employment which, although higher than before, may not entail a substantial reduction of the labour surplus; if the increase in population is very marked, the pressure will continue unabated. And once imports are displaced or reduced to a low proportion of total consumption, the industrial expansion is bound to slow down in the absence of new inducements.

While attempts of 'new' countries to participate in existing markets are subject to these limitations, an expansion brought about by Government spending, which creates additional demand, is not. Budget deficits have in principle the same effect in backward as in advanced countries: they generate new incomes. Where, therefore, lack of demand is the main obstacle to large-scale industrialisation, Government expenditure —whether on subsidies to consumption or on public investment—cannot fail to remove this bar. Financial considerations, and in particular the distribution of the burden of taxation and saving, will affect the size and the nature of the public development programmes, as we shall see presently. The seeming shortage of money and demand, however, need not be a limiting factor, provided that competent Governments can be set up capable of adopting forward methods of economic and financial policy. In view of the great need for the extension of basic services such as roads and canals, housing and schools, without which no industrial progress can take place, internal borrowing for collective

investment is likely to be the main vehicle of development.[1] The greater home demand derived from this constructional work would create conditions in which industries can be established. The secondary and possibly tertiary effects of the increase in incomes could be observed and taken as guide for directing industrial investment proper. The economic development would then assume the form of a planned process.

The theory of State initiated and financed expansion of demand is by now so undisputed, and there are so many historical precedents to confirm it, that more need not be said, at the present stage, about this starting point. We assume that this method will be chosen whenever the need for industrialisation is so strongly felt that slow changes and exclusive reliance upon private initiative no longer suffice. There are, however, certain specific bottlenecks which in backward areas will tend to create serious distortions of the cost and price structure during the transformation period; and these may slow down the development in spite of the stimulus of demand. First, the response of entrepreneurs to the inducement given by public development programmes may be inadequate. Although marketing risks would be lessened (on our assumption of an increase in purchasing power), lack of confidence and enterprise might hold up the expansion and modernisation of equipment. It would then be necessary for the State to underwrite private risks or to extend its investment activity into the private sector (State enterprise). This is a difficulty which, in all but the most backward countries, seems less formidable to-day than it did, say, fifty years ago, when practical experience of economic control and administrative capacity for large-scale public enterprise were limited. Even apart from the U.S.S.R. there are many instances in the recent history of industrialisation where the assumption by the State of entrepreneurial functions has accelerated the modernisation of equipment and reduced the disadvantages which formerly characterised the position of backward countries.[2]

[1] An increase in the purchasing and consuming power of the mass of the population could be secured by recasting the structure of taxation which in most backward countries (including S.E. Europe) is very regressive; land reform would have similar effects. But the need for an expansion in capital equipment would necessitate at the same time an increase in savings. The redistribution of income, therefore, would have to go hand in hand with a policy of collective saving imposed by the State. Cf. T. Balogh, 'Some Theoretical Considerations on Foreign Investment,' *Oxford Economic Papers*, No. 7, 1945.

[2] Cf. the following description of the rise of the Japanese spinning industry: 'The chief factor that aroused the industry out of inaction was not any favourable turn in the "marginal efficiency of capital." The Government was the tireless innovator in this industry. . . . The campaign started in 1877 when the Government bought spinning machines from England and offered to hand them over to any enterpriser who would start a spinning mill. Since no one accepted the offer, the Government set out to build two model factories of its own in 1878. In the following year it bought ten more machines and also lent money to three more mills for the purchase of machinery

Labour presents similar problems. Although abundant, it may be relatively immobile in rural economies. Wages and conditions of industrial work must therefore be made attractive enough to ensure a sufficient supply. Moreover, workers are unskilled and there are few training facilities. But the main bottleneck is in the supply of capital, which needs separate treatment.

SHORTAGE OF CAPITAL

The capacity to develop natural resources is limited at any given time by the amount of wealth which the exploitation of these resources has already created. In poor peasant countries average incomes are so low and the propensity to consume is so high that little is saved and left over for investment. Yet without large additions to the stock of private and social capital—to plant and equipment and to canals, roads, and similar collective services—the available labour force cannot be adequately employed. Leaving aside external financial assistance, only very slow changes can occur, unless the Government pushes investment beyond the amounts which people wish to save at each level of income. The scarcity of equipment relative to labour is, however, of such an order that even the most ambitious investment programme will not remove it in the short run, i.e. in a few years. A period of capital construction, extending over one or perhaps several generations, will be needed in most backward areas. During this period the lack of capital will continue and will express itself—apart from persistent, though decreasing, under-employment—in a shortage of consumer goods. For the constructional work undertaken for the sake of industrialisation (and, we assume, largely financed by the Government) will generate new incomes without resulting in an immediate increase in consumable output. More highly industrial countries experience similar conditions in war-time when demand expands so much that equipment (and labour) become scarce.

We attempt in the second part of this study to estimate the capital requirements for the first of a series of Five Year Plans which would aim at absorbing the agrarian surplus population of S.E. Europe within one generation. The result, based on admittedly simplifying assumptions, is that net investment in buildings, plant and machinery and in stocks of materials would absorb during this first period rather more than 15 per cent of the combined national income of the constituent countries. If this is compared with the pre-war rate of saving in this

. . . Such is the background of the expansion of 1877-81. In providing capital the state dominated the scene; directly or indirectly, it financed practically all the conspicuous expansion at the time.' —Shigeto Tsuru: 'Economic Fluctuations in Japan, 1868-93,' *The Review of Economic Statistics*, Vol. XXIII, 1941.

region of about 4 per cent on the average (and with 7 per cent in Great Britain), it is evident that investment would exceed considerably what people would freely wish to save, even if allowance is made for the increase in incomes during the process of expansion. In other words, a programme of that scope, if it were to be financed entirely from home sources, implies some pressure on consumption. This pressure may easily take the form of an inflationary rise in prices, notably of food prices (because the production of food is inelastic in the short run while demand would increase sharply).[1] To prevent this and to distribute the 'burden of saving' in a more equitable way than brought about by inflation will require complicated controls over prices and supplies which it might be difficult to establish and enforce in peasant countries.[2] The problem is aggravated by the inequality of income which in many backward countries promotes luxury spending rather than saving and investment. Redistributive measures, combined with State enforced savings, may therefore help to speed up the development.

It should be noted that capital requirements for any given increment in industrial employment are not a fixed item; they depend on the kind of industries which are developed and on the type of equipment used. Where the supply of capital is the main bottleneck, labour may flow, or be directed whenever possible, into trades which require little investment or can be rationalised with small capital outlay. Modern technology, especially the use of the electromotor, has eased the adaptation of certain hand industries in which relatively large gains in productivity can be made without heavy installations. But while this is true in certain fields, the bulk of modern industry tends to become more and more capital-intensive, and it is mainly in large-scale industry that technical progress is concentrated. It will therefore be difficult to keep capital requirements for any given intake of labour at a low level without losing the advantages of modernisation (high output per head). Shortage of capital may yet force industrialising countries to rely in the initial period on improved cottage methods of production rather than on large-scale industry (although this is clearly impossible in the field

[1] A reduction of food exports could (in S.E. Europe) increase the quantity available at home sufficiently to prevent an appreciable rise in food prices. But the shortage would then appear in the foreign trade sector.

[2] Recent plans for the industrialisation of India envisage an average rate of home savings (including the 'creation' of money and the assumed export surplus) of 12 per cent over a period of fifteen years. Cf. *A Plan of Economic Development for India* (Parts I and II), Penguin Books, 1945, pp. 51-6. It is, however, unlikely that this high rate of savings is obtainable in India without a large measure of inflation, unless tight controls can be instituted. For comparison see also the estimates of capital investment in the Far East (Japan and China), presented by E. Staley, *World Economic Development*, International Labour Office, Montreal, 1944, pp. 68-74 and Appendix.

of public utilities and in many others). When total capital is limited, the gain in aggregate income due to higher employment per unit of capital may offset the loss in efficiency, but there comes a point where the use of inferior equipment is tantamount to disguising unemployment.

Although each country or region can industrialise on its own, the development would proceed more quickly and call for smaller sacrifices if the home savings of the industrialising area were supplemented by foreign loans (on reasonable terms). Foreign investment raises the whole problem of external economic relations, into which we shall not go here. But certain aspects bearing mainly on the internal developments in the debtor country are relevant in the present context. First: a shortage of liquid funds in the developing country is in itself no justification for an inflow of capital. It is the task of the banking system and in particular of the Central Banks to look after liquidity and to control interest rates by regulating the supply of money. The failure of the monetary authorities to fulfil this task, or defects in the machinery through which savings are made available to industry, may hinder the development of existing local resources. Where this is the case in backward areas,[1] internal reform rather than external financial assistance is indicated. The purpose of the latter is to reduce a genuine scarcity of home resources by enabling the industrialising country to draw upon the resources of the outside world. Loans, therefore, should be given and used exclusively for payments abroad to purchase foreign equipment and raw materials or to finance the import of essential consumer goods; in the latter case domestic resources can be freed more easily for capital formation. Loaned funds which accrue to Central Bank reserves or are dissipated in the finance of unessential imports do not increase the productive capacity of the debtor country. More often than not they result in default, but even *if* their servicing is possible, it causes a fall in the real income of the borrowing country whose capacity to produce income has not increased *pari passu* with loans received.

Secondly, industrialising countries obtaining foreign capital can transfer the service charges on the development loans only if they have a current account surplus in their foreign balance by the time the inflow of capital ceases and payments fall due. It has been stressed, therefore, that part of the new investment must go into industries which turn out export goods or replace imports.[2] While this is true, it is hardly possible

[1] The main symptom for such defects is the high level of interest rates. The history of industrialisation shows that these can be reduced in a fairly short time by means of monetary and financial policy. See, for example, the rapid reduction in interest rates in Japan in the 'seventies and 'eighties, described by Shigeto Tsuru, loc. cit.

[2] See in particular, J. J. Polak, 'Balance of Payments Problems of Countries Reconstructing with the Help of Foreign Loans,' *Quarterly Journal of Economics*, February, 1943.

to indicate in advance which particular industries will eventually produce the required foreign exchange. The competitive position of all trades and hence the dividing line between home producers, exporters, and importers undergoes more or less far-reaching changes during the process of development. Moreover, at higher levels of total production and income there is wider scope for measures which replace specific imports or make available goods for export even at a loss. Provided that the operation of all industries taken together yields an export surplus, the debtor country is solvent. For the same reason it is quite irrelevant which industry is financed from home savings and which by foreign capital; nor does solvency on international account require that the foreign financed projects are profitable in the private balance sheet sense.[1] Funds may be obtained abroad for financing, say, the import of railway equipment. The operation of the new railroad does not directly yield foreign exchange but it may help to increase the export of goods which could not have been sold abroad without an improvement in transport services. Or assume that electric power plant is imported by a public agency on loan account and that, for reasons of general economic policy, power is sold at rates which do not cover full costs including interest and depreciation. Yet the loan is 'sound' if the development of electricity yields foreign exchange either directly (by replacing imported coal) or indirectly as in the case of the railway. The funds to be transferred abroad can always be obtained by public agencies from general revenue or from levies on the new industries whose profits increase on account of the State-initiated development. In fact, this rise in profits of other firms—or more generally: the rise in productivity—should be included in the economic yield of the electricity plant.

Foreign investment in its usual form of lending to single enterprise' cannot take advantage of such indirect profits or 'external economies' (which in the case of rapid changes in the economic structure are of a large order) and is therefore reduced below the optimum obtainable under different arrangements.[2] Its part in the building up of manufacturing industries in backward areas has so far been very small, for this reason as well as for others. Yet the success of a smaller lending programme relying entirely on the normal incentive of private entrepreneurs is not in any way better assured than that of a large but regulated programme. For the appropriate rate of lending can be determined only on the basis of factors which are not the concern of private investors.

[1] J. J. Polak, loc. cit., pp. 227–8.

[2] Cf. P. N. Rosenstein-Rodan, 'Problems of Industrialisation of E. and S.E. Europe,' *Economic Journal*, June-September, 1943.

The willingness of the creditor countries to buy more from, or to sell less to, the debtors when these cease borrowing and start repayment, is one of these factors (in addition to those others which form the responsibility of the countries receiving loans. These we have mentioned already.)

Two conclusions can be drawn regarding the form and institutions of foreign lending to industrialising countries. First, an arrangement by which complementary industries connected with regional development schemes were treated as one huge firm and included in a single investment unit, would reduce borrowers and lenders' risks—at least enterprise risks, as distinct from the transfer risk—and thus widen the scope of foreign investment. External economies would become internal profits which would cover debt charges even if particular enterprises were run at a loss. The Tennessee Valley Authority may be regarded as a model arrangement.[1] Secondly, the responsibility for achieving security in international investment finally rests with the Governments of the creditor and debtor countries, singly and taken as groups. For this security depends primarily on the degree of co-ordination which can be obtained—both in the period of investment and liquidation—between the flow of money capital and the flow of trade. These are matters of policy which in the nature of things are beyond the control of private individuals and banking systems. Whether they can be subjected to effective control by inter-governmental agencies—say, by a World Bank—remains to be seen.

THE DIRECTION OF INDUSTRIALISATION

Suppose that a steady increase in effective demand and provision of capital partly from home sources and partly from foreign savings render possible a certain rate of expansion. What direction will or should this expansion take? It has already been stated that the distribution of the increment in demand over the various industries may be taken as a guide; the new selling possibilities created by the spending programme would then determine what industries would be established and/or expanded. This criterion, however, conflicts with another principle, namely that a country or area should make no attempt to produce goods which other countries can produce more cheaply. Or—to put it positively—each country ought to produce what it is best suited to produce, and should dispose, by way of international trade, of that part of its

[1] Where developments projects cut across frontiers, such multiple-purpose authorities may assume a supra-national character. A Danube Valley Authority, for instance, would be a joint undertaking of the Danubian States in question set up by agreement between them. This undertaking, presumably, would borrow abroad, but it would be owned by the nationals (or the Governments) on the spot who would subscribe the funds required for mobilising home labour and materials.

output which exceeds its home requirements. This postulate, which is elaborated in the doctrine of comparative cost, indicates the policy by which the loss in productivity due to the absence of migration can be minimised (through specialisation). It points to the optimum use of resources and gives an order of preference of industries in accordance with the international gradient of costs. This criterion obviously is quite different from the simple demand principle that we have adopted as a provisional guide.

To be sure there is a wide range of industries where the demand principle can be accepted without qualification. It applies fully to the 'sheltered' industries, i.e. industries the products of which do not usually enter into international trade, such as house-building, road-making, bakeries, repair jobs, retail trade, the generation of electricity, and so forth. It applies also to the existing export industries, provided that their expansion does not force up costs and that conditions abroad do not change. In these industries the area may be presumed to have a comparative advantage; an expansion of these trades to supply an increased home demand would therefore seem to be justifiable. On the other hand, no theoretical principles are required for ruling out industries which cannot be set up because of the lack of specific resources. Coal mines cannot be opened where there is no coal. It is only in the remaining field of non-specific products hitherto wholly or partly imported, or of goods so far not produced in the area because there was no demand for them, that additional criteria will be required.

The comparative cost doctrine would seem to provide this criterion once the problem of demand is solved.[1] Suppose that the State by its financial policy gives the assurance of a steady growth of home demand. Suppose further that this policy, which reduces marketing risks and hence costs in the industrialising country, is supplemented by State investment in training (to increase skill) and by a reduction in interest rates. The expansion will then start on the basis of a new set of cost conditions which will permit or induce the erection of plant and the installation of better and more expensive machinery in cases where risk factors have so far prevented it. Certain industries, therefore, will find their competitive position improved, particularly in domestic markets. In other industries the improvement will be slower so that foreign suppliers will retain their cost advantage. In the absence of unused capacities, a large part of the additional demand is in any case bound to leak away into imports. Hence, if the employment or investment target

[1] Nothing of course would be gained by leaving productive resources idle for fear of devoting them to purposes which fall short of an ideal international division of labour.

is fixed high in relation to the rate of capital inflow, the risk of a foreign exchange shortage becomes very great. Whether a lowering of the exchange rate, by protecting the home market and fostering exports, will safeguard the position without a serious deterioration of the terms of trade, depends on market conditions at home and abroad. But at any given level of exchange rates there are always some foreign goods which can be replaced, and some home-produced goods which can be exported, at a smaller loss than others. The State could then be expected to foster the development of those industries in which the actual disadvantage is smallest, or in which there is a hope to turn this disadvantage, even if it were of some size at present, into a smaller one or into an actual advantage in the not too distant future. Output plans to that extent would be based on prospective costs or cost ratios. Since these can be changed in the short, medium, or long run, it is reasonable for the State, if it has a considerable part in determining the line of development, to proceed on the assumption that costs, under the influence of deliberate policies, will in fact be different in the future.

It is unavoidable that the theory of the international division of labour loses much of its classical simplicity, once full allowance is made for the mutability of all but those cost factors which are natural in the narrowest sense. If prospective costs serve as a guide to policy, a wide range of possible aims and methods opens up. Output programmes which, on a short period view, would be uneconomical appear less so if a longer view is taken. Industries, for instance, which require a high proportion of skilled personnel are at a grave initial disadvantage in backward areas, because skill is scarce and is dearer relative to unskilled labour than in advanced countries. Yet these industries may be supported on some scale—perhaps with the help of foreign technical assistance—because their very growth may be thought to contribute to the development of skill which is the purpose of industrialisation. Certain direct and immediate advantages given by the cost structure as it is would thus be sacrificed for the sake of future and possibly greater benefits.

The concept of long period costs is particularly relevant in view of certain technical developments which tend to reduce cost differences in manufactured goods between industrial or industrialising countries.[1] One may stress the liberation of industrial locations from coal deposits by the use of electricity; the growing possibilities of substitution which lessen the dependence on specific raw materials, and the increasing speed of technological adjustment so that opportunities for one plant or

[1] Cf. D. G. Robertson, 'The Future of International Trade,' *Economic Journal*, 1938.

industry to catch up with the pioneers become more frequent.[1] That this evolution leads to a decline in international exchange relative to total activity is only natural and has in itself no significance in our present context. But, as Prof. Robertson has emphasised, the same evolution also produces a state of affairs where a growing number of trades, which are on the margin of advantageousness, are liable to be blown to either side of this margin by small or short run changes in demand and in costs. Such fluctuations create specific risks and act as a brake on investment, unless output plans, under protection, can be based on anticipated long period costs. Suppose, for instance, that the countries competing with, or buying from, an industrialising area are underemployed for a period. Their cost ratios may then be distorted, because pressure on wages in the unsheltered industries may be greater than in sheltered industries or because the less intensive utilisation of equipment may lower short period costs. Also the demand for the products of the industrialising area would fall off. The concept of 'prospective advantages,' though in a modified form, could then be brought into play again: the expansion would be pushed ahead in industries which show an actual disadvantage but would be better placed if conditions abroad were more prosperous.

Estimates of what cost ratios will be in the future (or would be under different conditions) are in the nature of things highly uncertain so that the relevant decisions are necessarily somewhat arbitrary.[2] This becomes even more apparent if we allow for cost differences due to market imperfections or to differences in social organisation. Take the case of two industries operating in the same area of which one obtains unorganised labour at low wage rates, while the other has to pay higher rates because labour is well organised. Advantages and disadvantages relative to other countries may follow which bear no relation to efficiency. In such cases there is always more than one line of policy consistent with comparative costs. In practice the relative strength of sectional interests is likely to tip the scales.

Comparative costs are thus co-determined by the choice of policies,

[1] There are perhaps two main reasons for this. The first is the wider application and rationalisation of industrial research, the results of which are more easily transferable than knowledge that accumulates empirically. The import of knowledge was certainly a very important factor in the rapid industrialisation of the U.S.S.R. It seems, secondly, that the physical durability of equipment in those industries which are at present the main vehicles of technical progress is less than in the older industries; in any case, where plant has to be changed more frequently, for this reason or because of accelerated progress, it is more difficult to maintain a lead which, earlier, might have been held for a long time. See E. Peltzer, 'Industrialisation of Young Countries,' *Social Research*, Sept. 1940. Also A. J. B., 'Some Reflections on Industrial Efficiency,' *The Bulletin of International News*, Vol. XX, No. 23.

[2] This applies, of course, to private and unplanned investment as well as to State and planned investment.

by expectations, and by changes in the degree of monopoly. It is possible nevertheless to arrive at a few generalisations with regard to the probable lines of industrial development in overpopulated areas. In these areas unskilled labour is the cheapest single factor. Given this initial position, 'light' industries—that is, industries in which labour costs are most important—and the manufacture of simple goods *ceteris paribus* will be most profitable. If development takes place primarily on the initiative of private entrepreneurs, these industries are likely to be in the forefront. Capital equipment will be increased and improved particularly in trades in which mechanisation reduces skill requirements (as in most textile industries or in the manufacture of boots and shoes). As a broad rule consumer goods industries will develop first, while capital goods industries—apart from mining, building, public utilities, repair and assembly—will appear and expand only at later stages. This sequence has been observed throughout the history of industrialisation.[1] It is attributable not so much, and certainly not only, to the high capital or skill requirements of the constructional trades in general; in fact, some of them are 'lighter' and less dependent on skilled personnel than certain consumer goods trades. The main reason is that the (home) demand for industrial equipment, which is only a small part of total demand, is sufficiently high to induce the establishment of factories only when other industries and their replacement needs have already reached an advanced level. Certain constructional industries may from the beginning find a market outside manufacturing (for example, in an expanding agriculture or in mining); or they may enjoy cost advantages due to their nearness to good sources of raw materials, in which case they may develop as export trades. But in the absence of such specific conditions these industries do not normally play a leading part in the early stages of a (more or less) spontaneous industrialisation.

The pattern of planned industrialisation is likely to show significant differences. More capital-intensive techniques or industries needing higher capitalisation or a larger scale of operation will come into the range of profitability once the conditions under which new plant and machinery have to operate can be assessed with greater certainty. A more rapid capital accumulation based on State enforced savings will be reflected (*ceteris paribus*) in a higher ratio of capital goods to total production. The initial position with regard to costs nevertheless is likely to exert a strong influence upon the line of development. Many productive skills can be developed only in the course of time. In fields

[1] Cf. W. Hoffman, *Stadien und Typen der Industrialisierung*, Jena, 1931.

where costs are unlikely to change except in the very long run it will be worth while to accept at the outset conditions as they are.[1]

The interaction of demand and cost factors in industrialisation is worked out in some greater detail in Part B of this study. The Model which is presented there shows the emergence of a very diversified industrial structure with some emphasis on light industries. In general it is assumed that new factories will be erected on the basis of up-to-date technical knowledge (perhaps with pioneer plants set up by the State in certain branches). The possibility of drawing upon the knowledge accumulated in the advanced centres gives later-comers in industrialisation the chance of relatively rapid development once they start on an intensive process of catching up.

INDUSTRIALISATION AND THE ADVANCED COUNTRIES

Industrialisation affects the more mature countries through its influence upon their foreign trade (including that part of foreign trade which corresponds to foreign investment). Inasmuch as the building up of new manufacturing industries or areas stimulates competing supplies, the 'older' countries lose markets. But the expansion and increasing diversification of demand which is associated with industrialisation also creates new markets or markets for new products. The international division of labour, in the course of this process, is bound to become more complex. Foreign trade in different kinds of finished manufactures as well as specialisation by stage of processing (trade in semi-manufactures) depend on more complicated differences in national resources and skills than the simple exchange, on the nineteenth-century pattern, between primary products and manufactures.

Generally speaking one should expect that the relative importance of international trade—that is, the proportion of economic activity carried on for exports or dependent on imports—will decline as a result of industrial advance. This follows partly from the growing importance of services of which many have to be performed locally. Also, as the range widens of things which can be produced, perhaps at little more than the import price, in a certain area, the scope for useful specialisation becomes narrower. But, of course, the absolute volume of international trade may expand. Historical experience in fact strongly suggests that wherever industrialisation leads to a significant rise in the national income, the demand for imports will also rise, although in the long run not in the same proportion.[2] Whether and to what extent this trend

[1] See the discussion of this subject by A. J. Brown, *Industrialisation and Trade*, pp. 25-9.

[2] The only major exception is the Soviet Union where State direction of demand, eased by the existence of vast and varied resources, produced a contraction of foreign trade during the period of industrialisation and as a result of it.

expansion will result in higher export-totals of the advanced countries, but of any one of them, is a different matter. For the industrialising countries will trade more intensively with each other as their productive capacity develops, and this exchange between them will increase relative to their trade with the mature areas.[1]

Those mature economies whose foreign trade is largely with areas heretofore specialising on primary production, or whose exports are concentrated in industries the technique of which is easily transferable will have to bear a disproportionate share of the burden of adjustment. Their re-orientation entails shifts both from old to new exports and from the foreign trade to the home sector, shifts which in many cases necessitate the transfer of resources away from contracting trades. Unless the countries concerned can secure an adequate share of world exports in those newer industries whose trade will expand, their balance of payments will deteriorate. The declining trend of British exports in the inter-war period is a case in question. Under more favourable conditions the adjustment may be effected, over a wide range of industries, through alterations in the rate of growth of different trades. This easier path of adaptation is conditional upon a strong rise in world income—that is, upon the existence of strong expansionist forces both in the industrial and the developing countries.

The participation of foreign capital in the building-up of backward areas may introduce such an expansionist element. Provided that the capital inflow is at a reasonably steady rate—not subject to sudden suspensions or reversals—the advantage to the industrialising countries is obvious. The balance of payments of these countries tends to become passive during the period of capital construction when their demand for imports increases relative to their capacity to export; the latter, for a time, may even shrink on account of higher home consumption of primary products hitherto sold abroad. If there is no inflow of capital, the trade deficit cannot be sustained.[2] The developing countries may

[1] This follows from the broad rule that the degree of complementarity between industrial countries is higher than between primary producing countries, but lower than between primary producing and manufacturing areas. Cf. A. J. Brown, loc. cit., p. 57.

[2] Some backward countries, especially India and Egypt, are at present in a different position. They have accumulated during the war large external (sterling) balances—the counterpart of internal war savings—so that they can finance trade deficits for some time to come. In fact, the balances can only be liquidated if these countries, by a policy of intensive development, increase their capacity to *absorb* import surpluses (and if at the same time their additional import demand is, directly or indirectly, to the advanced debtor contry, i.e. the United Kingdom). Cf. E. F. Schumacher, *Anglo-Egyptian Currency Relations*, Bulletin of the Institute of Statistics, Vol. 7, No. 2. For a more general discussion of similar problems which demand special trade arrangements, see *New Plans for International Trade*, Supplement No. 5 to the Bulletin of the Institute of Statistics, 1943.

yet be able to go ahead with their plans if they can fill the gap either by the forced export of goods, which would otherwise enter into home consumption, or by the more rigorous displacement of imports. Both policies yield less satisfactory results in terms of real income or efficiency per newly employed worker than can be obtained if foreign capital is forthcoming.

The import surplus of the borrowing countries measures the deficiency in savings, compared with home investment, in the period of development. Conversely, there is an excess in the creditor countries which can be sustained or 'consolidated' in the form of long-term lending. Capital exports may thus serve in these countries as a convenient prop to home employment,[1] but it is also possible that investment or consumption at home are deliberately restricted in an advanced country which wants to strengthen, through foreign investment, its future capacity to import.

The conditions and policies which give rise to foreign lending naturally have a great bearing on the final results of investment abroad and on the flow of trade set in motion by it. No creditor country will be content to pile up paper claims indefinitely and at a cumulative rate in order to sustain permanent export surpluses. Nor will the borrowing countries accept a continuous rise in their foreign indebtedness. Sooner or later they will wish to meet their obligations without incurring new debts. It would be important, therefore, when granting development loans to lay down in advance at least the general lines on which servicing and repayment in the form of goods are to proceed. Detailed plans of this kind are not always practicable, but it will certainly rest with the creditor countries so to arrange their domestic affairs and their trade policies as to cause an eventual excess of imports. Alternatively, the debtors would be compelled to earn the means of international payment by cutting down their purchases, in which case they would reduce their dependence on foreign trade with a consequent shrinkage in international markets.

There can hardly be serious disagreement that substantial readjustments in the mature countries cannot safely be carried through under *laissez-faire* conditions. Even if general expansion were taken for granted, some planned control of contraction and transfer, some positive

[1] Participation in development work abroad, resulting in an increased demand for exports, provides a 'kind of stimulus which business men are accustomed to regard as good, whereas the same orders inspired by a public project at home might produce nervousness about Government competition and Government in business.' Cf. E. Staley, loc. cit., p. 111.

trade policy designed to facilitate the repayment must be adopted, particularly if the debtor country is small and only loosely linked by trade to the creditor country. To follow up these problems requires a separate study and is not attempted here.

Perhaps a more serious limitation of the following study is that it only deals with one aspect of the many internal changes that start in a backward area when it embarks on industrialisation. We are only concerned here with the economic aspects of this process. That—it will be agreed—pre-assumes a great deal. The intensive development of backward parts of the world assumes the existence in these parts of reasonably stable governments capable of advance planning and strong enough to overcome the resistance of interested groups. It requires the building up of new institutions in many fields, including general education and technical training. All these social and political problems are outside the scope of this book. The following part concentrates on the changes in the industrial structure which an agreed policy of industrialisation is bound to carry with it. We present these changes in the form of a model, i.e. of a system of estimates which, under the assumed conditions, might indicate the lines of purposeful action.

PART B

A HYPOTHETICAL MODEL OF AN INDUSTRIALISATION PROCESS IN S.E. EUROPE

CHAPTER I

THE TARGET AND THE PROVISIONAL ALLOCATION OF RESOURCES

I. THE RATE OF INDUSTRIALISATION IN TERMS OF LABOUR

THE pre-war agricultural surplus population of the area between East Prussia and the Aegean and Black Sea has been estimated at between sixteen to twenty million people, of whom six to eight million may be classed as active. The annual increment due to the natural growth of population amounts on the strength of pre-war data to about 400,000 employable workers. In order to absorb this surplus—say eight million—within one generation, an average of almost 700,000 people (including the current increase) would have to be provided annually with new jobs outside agriculture. We shall base all subsequent calculations on an average annual intake of this order.[1] This is, of course, an arbitrary assumption. It implies a rate of industrial expansion which may be too high to be achieved or too low to be satisfactory; for the present we defer judgment. But in no case is this target or any figure derived from it to be taken as a concrete estimate for an actual reconstruction plan for S.E. Europe; the purpose of our calculations is to illustrate the argument. Nor shall we follow the complex process of industrial development through the whole period of one generation. For the sake of simplicity we focus attention on the first stage of, say, five years. Our starting point is a situation similar to that of 1937. We assume that after the damage caused by the war has been made good, measures to create industrial employment will be taken in our area—that is, in each of the countries forming that area—and that they will draw each year about 700,000 people from agriculture, where the surplus would accrue,

[1] A recent estimate contained in a publication of PEP puts the combined surplus population of Poland, Hungary, and the 'Balkan' States at six million active workers. If this lower figure is accepted, our planned intake would absorb the surplus in twenty instead of thirty years. Cf. PEP, *Economic Development in S.E. Europe*, Oxford, 1945, p. 39.

into a new industrial sector, i.e. into Industry and Services.[1] Given this hypothetical rate of expansion we shall now proceed to construct a model showing the flow of output and demand and the requirements of capital associated with the planned increase in employment. The various assumptions which underlie this model will emerge in the course of its construction. We hope that our results will throw light on certain quantitative relationships which prevail in industrialisation.

2. THE GEOGRAPHICAL DISTRIBUTION OF THE LABOUR INTAKE

The rate of industrial expansion can hardly be expected to be the same all over the region. For the purpose of our calculations let us assume that the intake of industrial and service personnel in each major part of the area will be in proportion to the local (national) labour reserve. In other words, we exclude free mobility of labour *between* the constituent countries and rely on their parallel action rather than on complete unification.

Of the eight million surplus workers in agriculture, we estimate that before the war about 4 per cent were in Hungary, 5 per cent in Greece, 6 per cent in Bulgaria, 20 per cent (or slightly more) in Yugoslavia, 25 per cent in Rumania, and 40 per cent (or slightly less) in Poland. On this basis we may allocate to each country the following share in the total inflow (Table I); the slight difference between the provisional and final target figures will be explained presently.

TABLE I

ADDITIONAL LABOUR QUOTAS IN S.E. EUROPE

AVERAGE ANNUAL ADDITIONS TO INDUSTRIAL AND SERVICE PERSONNEL

Country (*Pre-war Frontiers*)	*Per Cent*	*Numbers*	
		Provisional	*Final*
Bulgaria	5	35,000	33,750
Greece	5	35,000	33,750
Hungary	5	35,000	33,750
Poland	40	280,000	270,000
Rumania	25	175,000	168,750
Yugoslavia	20	140,000	135,000
TOTAL	100	700,000	675,000

3. THE INDUSTRIAL DISTRIBUTION OF THE LABOUR FORCE

In what proportions will the new labour force be distributed among the various industries? Increased public outlay will initiate the expansion

[1] There also exists in S.E. Europe a certain amount of disguised unemployment in the towns, particularly in retail trade and handicraft. We assume that this urban surplus, estimated at about 500,000 workers, can be absorbed in existing capacity.

and create a new 'direct' demand for all kinds of finished goods (and services) on the part of the new workers and other income receivers as well as a derived demand of firms for materials and semi-finished goods. The expansion of the new trades and their prospects will be determined largely by these new selling possibilities. But, of course, certain kinds of production, although needed, will be ruled out by natural conditions, i.e. by the lack of specific resources. Other goods, which could technically be produced within the region, may be supplied at lower cost by foreign producers—provided that these imports can be financed. This largely depends on the capacity of foreign countries to absorb the goods and services that our region can supply.

Conditions in the foreign markets for capital are equally important. The backward countries of S.E. Europe need more equipment, including roads and buildings of all kinds. In the absence of a repressive control of consumption only part of these capital goods can be obtained from home resources, if the entire *current* needs of the new working population are to be satisfied, directly or indirectly, from these resources. Conversely, if an appreciable part of the new equipment is to be produced at home, the consumable output will not be sufficient to sustain the working population fully—that is, at conventional real income rates—during the period of capital construction. Hence the need for foreign loans to supplement internal savings. The extent to which such loans can be obtained on reasonable terms will have a decisive influence on the rate of expansion as well as on the direction it takes. If the supply of capital is inadequate, labour intensive processes and industries will have to be given preference, even where cost conditions are favourable to more capital-intensive techniques and trades.

In constructing our model, we have attempted to take account of all these factors which operate both on the supply and on the demand side. But we have adopted a simplifying procedure to begin with. Our first task was to allocate part of the new labour force to services.

(*a*) *Industry and Services*

Industrialisation does not merely consist in the development of secondary industries. It will also induce, or be conditioned by, a parallel growth of services such as transport, distribution, banking and insurance, administration, the liberal professions, etc. Although this development is of great significance, we have found it necessary to restrict detailed treatment to industry proper, i.e. to mining, the production of light and power, building and construction, and manufacturing. But the expansion of services has not been neglected altogether. To take

account of their parallel growth we have attempted to estimate the ratio of service employment to industrial employment.

We started from the pre-war occupational structure of S.E. Europe and of Austria and Czechoslovakia. The relevant data, taken from the last censuses, are summarised in Table II, col. 3-6; they show that pre-

TABLE II

OCCUPATIONAL DISTRIBUTION OF THE ACTIVE POPULATION OF S.E. EUROPE

(round percentages)

Country	*Date*	*Per cent of Active Population employed in:*				*Estimated ratio of 'relevant' service employment * to industrial employment. Per cent*
		Services	*Industry and Mining*	*Agriculture*	*Miscellaneous*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Austria	1934	32	33	32	3	63.4
Czechoslovakia	1930	24	36	38	2	42.9
East and South East Europe		13	14	70	3	25.8
of which:						
Bulgaria	1934	10	8	80	2	20.4
Greece	1928	21	18	61	—	43.3
Hungary	1930	20	24	53	3	38.5
Poland	1931	15	17	65	3	29.4
Rumania	1930	11	7	78	4	22.9
Yugoslavia	1931	9	11	79	1	17.6

* i.e. employment in services required by industry.

war employment in services was about 13 per cent of total employment in our area. These figures, however, give no clue as to what part of the services 'correspond' to industry in the sense that their development is a concomitant or result of industrialisation proper, or that they serve the industrial production and population. For some part of a country's services will be needed for agriculture and other activities, and some, as in Britain, may constitute an export industry and be related to industrial or agricultural demand originating from abroad. The proportion of 'relevant' services—that is, services corresponding to industry—varies considerably between different areas and different periods. If we divide services into Group I: Transport and Distribution, and Group II: Other Services (Education, Health, Amusement, Liberal Professions, Domestic Services, Administration) it may not be unreasonable to assume that in our area something like 75 per cent of the services of Group I and, say, 60 per cent of those of Group II were required

by the industrial population, while the remainder served agriculture.[1] Since employment in these two groups of services was of approximately the same order of magnitude in S.E. Europe before the war, industry may have absorbed rather more than two-thirds of all the services. We have therefore given industry double weight, compared with agriculture (and miscellaneous trades), in dividing up the services between them. Hence, if the percentage of total employment absorbed by all services=s, by industry=i, and by agriculture and miscellaneous trades=a, the share of 'relevant' services in *total* employment would be $\frac{2i}{a+2i} \cdot s$ per cent and their share in industrial employment $\frac{200s}{a+2i}$ per cent.

In this way we obtained in column 7 of Table II an estimate of the proportion of 'relevant' services to industrial employment in our area before the war. The figures show clearly that the proportion rises with the degree of industrial development. They also indicate that our formula overstates the true service proportion for countries which export services on a relatively large scale such as Austria (tourists, banking) and Greece (shipping). It follows that for our model we need a figure higher than that prevailing in our area in 1930, but lower than the Austrian. In a first set of calculations we have taken the Czechoslovak figure (43 per cent) as the most appropriate.[2] But the needs of the building programme, which will be discussed presently, have forced us to cut down the number of workers going into trades other than building, and we have assumed that a small part of this reduction will fall on services which in parts were overcrowded before the war (disguised unemployment in urban retail trade). Our later calculations and tables are therefore based on the assumption that for every hundred people newly absorbed into industry another thirty-five will find employment in services.

Our target is the elimination of the agricultural surplus population within one generation. To this end a new source of non-agricultural income must be opened for an average of about 700,000 'workers' each year. In order to have a round figure we shall fix the annual intake into industry proper at 500,000 (as against about 250,000 p.a. in the period

[1] Industrial products are entirely sold in the market, while a large proportion—on the average perhaps 60 per cent—of the farm output of the region is consumed by producers (barter income) and does not require distributive services. Furthermore, transport of machinery and raw materials is needed much more by industry than agriculture. The urban population may also make more use of the other services than the peasants.

[2] The data available for the countries concerned are insufficient for calculating the marginal increase of employment in services associated with an addition to industrial labour.

1935-1937).[1] Total new employment would then be 715,000, if the service proportion is taken at 43 per cent, or 675,000 if it is 35 per cent.

(*b*) *The Main Branches of Industry* (*Model I*)

Our next step will be to allocate the new industrial personnel (500,000 'workers') to the various branches of industry proper. For this purpose we provisionally regard the nearest more highly developed countries, namely Austria and Czechoslovakia, as 'model areas' which in their labour distribution give some indication of the kind of structure resulting from the industrialisation of our region. In other words, assuming that the ultimate industrial pattern of S.E. Europe will resemble more closely than at present the pattern existing in Austria and Czechoslovakia, we have decided to plan for such a pattern from the beginning. In the nature of things this can only be a first approach. Specific cost and demand conditions will be allowed for by way of subsequent modification.

We show in Appendix A the distribution of the labour force between the various industries in Austria and Czechoslovakia. The Table in the Appendix combines the results for both countries of the 1930 censuses of business establishments. We have reduced the figures to a standard classification of industries to be used throughout this study. In order to do this, it was necessary to split up one or two industrial groups, for which we had to rely on estimates.

If our average annual addition to industrial labour is allocated to the various branches according to this model distribution, we arrive at the first stage of our programme. (See Table III.)

The picture that emerges is characteristic of conditions in Czechoslovakia and Austria. It shows a fairly balanced, i.e. diversified economy, with a high degree of development in the food, clothing, textile, and metal industries. For the purpose of our model, this is appropriate as far as 'balance' is concerned. Food industries might be given a bigger share. Clothing and textiles, being light industries, are usually regarded as particularly suitable for newly developing countries; the proportion of workers in these industries in Czechoslovakia and Austria was, however, particularly high owing to export trade, and we may have to adopt a somewhat lower percentage. Finally, metal industries are predominantly heavy industry, and dependent on the availability of coal and other raw materials. For this reason some of these groups may also have to be reduced; on the other hand, the

[1] A high proportion of this pre-war intake was absorbed in existing capacity, especially in Poland.

TABLE III

LABOUR DISTRIBUTION BASED ON THAT IN AUSTRIA AND CZECHOSLOVAKIA IN 1930

MODEL I

Industry and Services	*Average Annual Addition to Personnel*		*Subdivision of Manufacturing (Group C)*	*Average Annual Addition to Personnel*	
	In per cent of Total Industry (A to C)	*Numbers (Thousands)*		*In per cent of Total Industry (A to C)*	*Numbers (Thousands)*
A. Mining and Electricity:			1. Food, Drink, Tobacco	11	55
1. Mining	6	30	2. Clothing and Bedding	14	70
2. Electricity	1	5	3. Textiles	14	70
	—	—	4. Leather, Fur, Rubber	1	5
SUB-TOTAL A	7	35	5. Chemicals (incl. Gas, Coke, Petrol)	2	10
			6. Paper, Stationery, and Printing	4	20
B. Building and Construction	13	65	7. Furniture and Woodwork, Pottery and Glass, Miscellaneous	10	50
C. Manufacturing	80	400	8. Building Materials (incl. Timber)	6	30
	—	—	9. Light Metal and Electrical Products	6	30
TOTAL INDUSTRY A to C	100	500	10. Semi-manufactured Metals and Engineering	9	45
D. Services[1]	43	215	11. Metal Extraction and Refining	3	15
	—	—		—	—
GRAND TOTAL A to D	143	715	Total Manufacturing (C)	80	400

[1] The proportion of services is based on Czechoslovakia only. It represents that part of total services which 'corresponds' to industry, estimated by the method explained in the text.

process of industrialisation will create a big demand for certain metal products for which we have to allow.

It is more important to note that our Table describes a fairly static economy. The industrial structure of Austria and Czechoslovakia was more or less stationary by 1930. This is a situation completely different from that in our region during the years of intensive development. Building and constructional work in particular is bound to absorb a higher proportion of workers than in Austria and Czechoslovakia. We must therefore revise our provisional allocation to allow for higher building requirements.

(c) *The Building Programme*

The demand for buildings of the new industrial community may be split up into three parts:

1. Housing for the new working population;
2. Buildings for Industry and Services (including railways, but not roads; and including gas and electricity works, but not mains and installations);
3. Amenities and Public Works (roads, bridges, harbours, river controls, and so forth).

These items make up the private and public requirements of buildings and constructions. In order to adapt our figures to the conditions of a growing building output and to our calculations based on Census of Production data,[1] we must add to them:

4. The addition to construction work in progress and unsold houses which form part of the new working capital of the industrialising community; and
5. Duplication in the gross output of the building industry due to subcontracting.

By estimating and adding up these items we arrive at the Total Gross Output required to provide the new industrial sector with all the buildings it needs. Our estimates, some of which are highly conjectural, are as follows.

(i) *Full Requirements*

Housing. The pre-war cost of a working-class house in Britain, net of land, was in the neighbourhood of £350. Requirements and costs in our area are certainly much lower, and we may not be far out in estimating them at half the British figure, i.e. £175 per breadwinner (at pre-war prices).

[1] See footnote 1, p. 36.

The figure of £175 applies to lower income groups only. The higher income groups, comprising those who derive their incomes from high paid work and/or from property, have different standards and demands. Let us assume that the former groups, mainly consisting of wage- and small salary-earners, make up 85 per cent of our total intake of 3,375 million people in five years.[1] Thus we have to provide housing accommodation for 2,875 million 'wage-earners.' Given an outlay of £175 per head, the total cost would amount to just over £500 million.

The housing requirements of the higher income groups ('profit-earners') have been calculated on the basis of house rents paid by them. The rent figures are derived from our estimate of the aggregate income of 'profit-earners' and from their budgets which show an expenditure pattern appropriate to a higher level of individual incomes.[2] These estimates give the ratio of aggregate rents (exclusive of rates) paid out of profit incomes to rents paid by wage- and small salary-earners as $\frac{2\,90}{4\,10}$. Profit-earners' rents, however, reflect site values more than wage-earners' rents. We have therefore deducted one-fifth from the rent expenditure of the former group, which would then be £2.3 million compared with £4.10 million spent by wage-earners. Assuming that the cost of providing houses for both classes is in proportion to this ratio $(\frac{2\,30}{4\,10})$, we arrive at a figure of £280 million for 'profit-earners.'

This calculation overstates the housing requirements of the higher income groups. No allowance has, for instance, been made for the fact that profit incomes include surpluses of public enterprises. Moreover, it seems likely that the deduction of one-fifth on account of site values is too small and that the proportion of profit-earners' income allocated to rent in the family budgets (10 per cent) is insufficiently below the corresponding proportion of wage- and small salary-earners (11 per cent). Our estimate will be revised presently.

Building for Industry and Services. We have deducted 20 per cent for Land from the total capital required in Industry and Services for Land and Buildings (as computed in Table IX) and thus arrived at an amount of roughly £335 million building costs under this heading for five years.

Amenities and Public Works. An estimate of their cost would need more detailed study than we have been able to undertake. We have tentatively assumed that the cost would be about two-thirds of the cost of 'Buildings for Industry and Services' which seems a fairly generous estimate. It works out at ca. £220 million.

[1] On the basis of an average annual intake of 675,000 which is our final figure.
[2] See Appendix D, Tables 2 and 3.

Hence the total requirements for users of buildings would add up for the first five years to £1,335 million of which £780 million would represent housing costs.

Addition to construction work in progress and Duplication. The output of an expanding building industry contains work in progress and unsold houses which form an addition to its stock of capital. Let us put these additions, for illustration, at £85 million. The last item, Duplication, is the excess of the gross output of the building industry over the value of its final product. Only by including duplication can we arrive at gross output as defined in Census of Production statistics, and can then convert this output, by way of international comparison, into a man-power figure. The amount of duplication, which depends on the organisation of the industry concerned, is however very difficult to determine. Our addition under this heading (ca. 13 per cent) is, if anything, too small.[1]

Our estimate of the full building requirements is now as follows:

TABLE IV

FULL BUILDING REQUIREMENTS FOR FIVE YEARS

	£ *million*	£ *million*
1. Housing: Wage- and Small-Salary Earners	500	
Others ('Profit-Earners')	280	
		780
2. Buildings for Industry and Services		335
3. Amenities and Public Works		220
Total User Requirements		1,335
4. Addition to Working Capital		85
5. Duplication		180
Total Gross Output		1,600

If we take the average gross output per head in building and construction as £300 per annum (see our Standard Figures in Table VIII), this building programme would require over five million 'man-years.' With an average annual labour intake of 675,000, the total number of 'man-years' worked over the five year period will be fifteen times 675,000= 10,125,000 years[2] of which just about half would go into building and construction. This is a rather high proportion. It would imply that a very large part of the new demand for other goods and services would have to be met by imports on credits which—if at all feasible—may not

[1] Cf. Dr. E. C. Snow, 'The International Comparison of Industrial Output,' *Journal of the Royal Statistical Society*, Part I, 1944, pp. 15-16.

[2] This is on the assumption that the man-power intake proceeds by a series of discreet steps so that the labour to be newly employed each year is always fully absorbed at the beginning of the year. We have made this assumption throughout our study for reasons of arithmetical convenience.

be desirable. We conclude that in a period of rapid industrialisation it is hardly possible to satisfy in full all the building requirements, including the complete re-housing of the new industrial population. We must therefore cut down the programme to what is essential for preserving productive efficiency and preventing undue hardship.

(ii) *Reduced Requirements*

In the following Table our estimates have been reduced in certain proportions which seemed to us reasonable. The only figure which has not been revised is that of 'Buildings for Industry and Services'; this estimate is based on our later calculations. The largest cut is in housing, particularly for 'profit-earners.' But we have also assumed that many of the new workers will be able to remain, at least for the time being, in their old dwellings in the villages, or find accommodation in existing buildings in the towns or in temporary erections which can be replaced with far less difficulty during the second five year plan. Moreover, inasmuch as there is scope for modernising scattered rural industries the housing problem becomes easier.

TABLE V

REDUCED BUILDING REQUIREMENTS FOR FIVE YEARS

	£ *million*	£ *million*
1. Housing: (*a*) Wage- and Small-Salary Earners	235	
(*b*) 'Profit-Earners'	40	
		275
2. Industry and Services		335
3. Amenities and Public Works		155
Total User Requirements		765
4. Addition to Working Capital		35
5. Duplication		100
Total Gross Output Required		900

The creation of new capital in the form of buildings now amounts in five years to about £800 million (excl. duplication), of which roughly one-third consists of investment in new houses. If we relate this figure to the planned addition to the total stock of capital of our area, as computed in the later part of this study (£1,515 million, net of land), it will be seen that houses would absorb slightly more than one-sixth of this total. This may be deemed a reasonable proportion. It is lower than in most developed countries,[1] but it must be remembered again that we are dealing here with a poor area where the formation

[1] For international comparisons, as far as they are possible, see Colin Clark, *The Conditions of Economic Progress*, pp. 395-422.

of new consumers capital (housing) is likely to be restricted for some time in the interest of more rapid industrial advance.[1]

The reduced building programme for the five year period requires three million man-years, which gives us an average annual addition to the building labour force of $\frac{3,000,000}{15} = 200,000$ workers; this is equal to 40 per cent of the industrial intake excluding service personnel, and 30 per cent of total new employment.

4. THE INDUSTRIAL DISTRIBUTION OF LABOUR AS AMENDED FOR BUILDING REQUIREMENTS (MODEL II)

Having raised the number of workers going into building to the level of minimum requirements, we have now the following allocations of the new industrial labour force (excl. services).

TABLE VI

ALLOCATION OF THE NEW INDUSTRIAL PERSONNEL

AVERAGE ANNUAL INTAKE

Group	*According to Czech-Austrian Model*		*According to Building Programme*	
	Numbers (Thousands)	*Per Cent*	*Numbers (Thousands)*	*Per Cent*
Building and Construction	65	13	200	40
Other Industry	435	87	300	60
Total Industry	500	100	500	100

Thus the revision of the building programme, gearing it to a developing economy, has reduced the number of industrial workers going into trades other than building by 135,000 p.a., that is by 27 per cent.

In Table VI the whole adjustment has been made in the figures of 'Industry,' but, of course, the re-grouping should affect Industry *and* Services. The latter, however, cannot be cut down as easily as industry. For a large proportion of the services has to be produced in the country of consumption; only a fraction can be imported so as to make up for deficient local supplies. Considering, however, that in S.E. Europe there is a certain amount of disguised unemployment in urban retail trade, we have assumed that vigorous measures for the rationalisa-

[1] Compare also the Bombay *Plan of Economic Development for India* which proposes to devote to housing during the first five years about 13 per cent of total capital expenditure (as against our 17 per cent). Housing costs per breadwinner are, however, very much lower in India than we have estimated them for S.E. Europe.

tion of the distributive services will improve the utilisation of existing excess capacity in that field. We have therefore reduced the 'service proportion' from 43 to 35 per cent and have calculated our building programme on the basis of this lower intake (675,000 new workers instead of 715,000).

Our next step has been to reduce the various groups included in 'Other Industry' by 27 per cent, thus preserving the structure of the 'Czech-Austrian Modél' apart from Building and Services. The result of this revision is Model II; it is shown in the following Table.

TABLE VII

LABOUR DISTRIBUTION ADJUSTED TO BUILDING PROGRAMME

MODEL II

Industry and Services	*Average Annual Addition to Personnel*		*Subdivision of Manufacturing (Group C)*	*Average Annual Addition to Personnel*	
	In per cent of Total Industry (A to C)	*Numbers (Thousands)*		*In per cent of Total Industry (A to C)*	*Numbers (Thousands)*
A. Mining and Electricity:			1. Food, Drink, Tobacco	7.6	38.0
1. Mining	4.1	20.5	2. Clothing and Bedding	9.6	48.0
2. Electricity	0.7	3.5	3. Textiles	9.6	48.0
			4. Leather, Fur, Rubber	0.7	3.5
SUB-TOTAL A	4.8	24.0	5. Chemicals (incl. Gas, Coke, Petrol)	1.4	7.0
			6. Paper, Stationery, and Printing	2.8	14.0
B. Building and Construction	40.0	200.0	7. Furniture, Woodwork, Pottery and Glass, Miscellaneous	7.0	35.0
C. Manufacturing	55.2	276.0	8. Building Materials (incl. Timber)	4.1	20.5
			9. Light Metal and Electrical Products	4.1	20.5
TOTAL INDUSTRY A to C	100.0	500.0	10. Semi-Manufactured Metals and Engineering	6.2	31.0
			11. Metal Extraction and Refining	2.1	10.5
D. Services	35.0	175.0			
GRAND TOTAL A to D	135.0	675.0	Total Manufacturing (C)	55.2	276.0

CHAPTER II

THE OUTPUT OF THE NEW INDUSTRIAL SECTOR (MODEL II)

I. STANDARD FIGURES OF CAPITAL REQUIREMENTS AND LABOUR PRODUCTIVITY

THE industrial distribution of labour, which we have now determined, serves as a provisional basis for computing the resulting outputs, the demand for materials, semi-manufactured and finished goods generated by the process of industrialisation, and the requirements of capital of various kinds.

All these last-named quantities will differ widely from industry to industry and even between different parts of the region. To take account of this would lead to very complicated calculations. For the purposes of our model we have compiled a single standard set of figures of capital,[1] power, materials consumed and output per person employed by major industrial groups. They are shown in Table VIII.

Suitable figures, particularly for capital per head, are not available for more than a few countries. Our estimates are based on the statistics of Hungary, Rumania, Australia, Canada, and partly Palestine; they are collected and presented in Appendix B. The data are not strictly comparable, but they indicate that in most cases the level of equipment in past years has been lowest in Rumania and Hungary, higher in Australia, and highest in Canada. For our calculations we have provisionally adopted the Australian standard as the main yardstick. Developing countries usually instal modern plant and up-to-date equipment when they establish new industries. The same is to be expected in our area, if the capital supply permits. Plant and machinery installations in the new sector may therefore approximate to the Australian standard.[2] Various other considerations have been taken into account in dealing with individual industries. For instance, the Australian paper and printing industry (our group 6) in the middle of the thirties consisted mainly in the manufacture of paper products and printing publications, with little actual paper-making. As the latter requires more capital and power than the other branches of this group of industries, the average *per capita* figures for Australia are in this respect too low for our purposes.

[1] Capital as defined here is the total value of the real assets of a firm or industry such as land, buildings, plant, and machinery as well as stocks of materials, of goods in progress, and of finished goods. Working capital therefore includes only these stocks and not purely financial items such as cash accounts, securities, or goodwill.

[2] If this equipment were utilized more intensively than in Australia (say, by multiple shift working), capital requirements per new worker would be reduced. But we have disregarded this possibility.

TABLE VIII

STANDARD FIGURES OF CAPITAL, POWER, MATERIALS, AND OUTPUT PER OCCUPIED PERSON[1]

Industry	Capital (£)				H.P. Power Installed	Annual Flow of (£)			
						Materials Consumed		Net Output	Gross Output
	Total	Land and Buildings	Plant and Machinery	Working Capital		Total	of which Fuel and Electric Energy		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. Mining and Electricity:									
1. Mining	830	300	400	130	4.0	60	18	200	260
2. Electricity	6,000	1,900	3,800	300	200.0	250	180	950	1,200
B. Building	170	60	50	60	0.2	150	5	150	300
C. Manufacturing:									
1. Food, Drink, Tobacco	650	200	250	200	3.5	800	25	300	1,100
2. Clothing and Bedding	200	90	30	80	0.5	180	5	120	300
3. Textiles	300	90	120	90	2.0	300	15	150	450
4. Leather, Fur, Rubber	300	120	80	100	2.5	470	15	180	650
5. Chemicals	1,000	220	550	230	4.0	630	40	370	1,000
6. Paper, Stationery, Printing	450	160	200	90	3.5	220	20	280	500
7. Furniture and Woodwork, Pottery and Glass, Miscellaneous	200	100	60	40	1.5	200	15	150	350
8. Building Materials	350	120	150	80	4.0	230	25	170	400
9. Light Metal and Electrical Products	300	100	100	100	2.0	240	15	180	420
10. Semi-Manufactured Metals and Engineering	350	140	120	90	2.5	180	15	170	350
11. Metal Extraction and Refining	550	130	270	150	7.5	820	90	330	1,150

[1] Estimates based on material contained in Appendix B.

As a result of better equipment we should also count on a higher output per head than was generally reached in Rumania and Hungary before the war. But with a rapid inflow of workers recruited from the peasantry, with the initial shortage of skilled managers and engineers, it cannot be expected that productivity in the new industries will reach the Australian level within the first five years. Thus, while net output per occupied person in manufacturing industry was in the neighbourhood of £145 in Hungary and Rumania in 1937 and between £250 and £300 in Great Britain, Australia, and Germany, we have assumed during our first five year period a net output per newly employed person of about £195 in manufacturing and £180 in all new industries together;[1] these are, of course, pre-war values.

2. THE PRODUCTION PROGRAMME

By multiplying the man-power figures of Table VIII with the Standard Figures of Table III we obtain the output of the new industries as well as the capital they need. In the case of services, no standard figures are available. But such data as we have seem to show that no great mistake will be made by assuming that total capital per head (as distinct from its composition) will be much the same in services as in industry as a whole.[2] Requirements for land and buildings are likely

[1] Gross output and net output are defined here as in Census of Production statistics. They contain an important element of duplication, unless there is complete integration at various stages of the productive process. The gross output of an industry, in these statistics, is the aggregate value of the output of all firms. If there is sub-contracting within that industry (so that one firm uses and transforms the products of others), the gross output of the industry exceeds the value of its final products available for sale to users. This excess is duplication. Net output would be free from such duplication only if all goods and services bought by a firm or industry from others were included in 'materials consumed' and with the latter item deducted from gross output. The difference would then be equal to the net output as defined by economists. Such cost items as insurance and advertising and also the depreciation allowances on capital equipment are not normally assessed separately and are not deducted from gross output in Census of Production statistics; hence the duplication. Since most of our figures are taken from statistics of this kind, we have also used the terms in the same sense. Other figures had to be adjusted (by adding duplication) in order to achieve comparability with the Census figures. See e.g. Table X.

[2] Compare the following Table showing capital employed per worker in the United States (1935), but note that in this Table Public Utilities include railways which are very capital-intensive, while in our classification they are included in Services.

VALUE OF LAND, BUILDINGS, EQUIPMENT, AND INVENTORIES PER FULL-TIME WORKER, 1935 (IN £ STERLING)

Public utilities	2,380
Mining	1,740
Agriculture	780
Manufacturing	740
Services to the consumer excluding housing and education	740
Trade	400
Crude average for the whole economy	920

(Structure of the American Economy, Part I, *National Resources Committee*, 1939). Dollars have been converted into £ at the rate 1 £=5 Dollars.

to be higher, while those for plant and machinery and working capital should be lower, particularly the latter. Materials consumed are probably lower, too, although this may not be as marked for fuel and electricity. Net output per head in services may well be somewhat higher than in industry, but in the absence of accurate information we have assumed that it is the same.[1] On these grounds, and with the object of obtaining fairly round figures, we have added to the industry totals (groups A to C) certain percentages on account of services which are shown in the footnote to the following Table IX.

This Table gives us for each industrial group the average annual addition, during the first five year period, to various kinds of capital and power installations as well as to the flow of materials consumed and output produced. We need not to go into details at this stage. But attention may be drawn to the changes in capital outlay associated with the transition from Model I to Model II. It appears that the shift towards building, which is a labour intensive trade, has resulted in a significant reduction in capital requirements for industry (groups A to C). These requirements would work out in Model I to £210 million p.a., equal to £420 per head. Our present figure is about £172 million, equal to £345 per head. These figures are inclusive of land, but they make no allowance for the addition to capital in the form of dwelling houses, roads, etc.; the capital employed in the building and building materials industries, however, is included.

[1] According to Colin Clark (*Conditions of Economic Progress*, pp. 318 and 276) the ratios of net output per head in services to net output in industry show wide and rather irregular variations from country to country.

TABLE IX

PRODUCTION PROGRAMME

AVERAGE ANNUAL ADDITIONS, MODEL II

I. SUMMARY

Industry	*Capital*				*Power Installed*	*Annual Flow of*			
						Materials Consumed			
	Total	*Land and Buildings*	*Plant and Machinery*	*Working Capital*		*Total*	*Of which Fuel & Electric Energy*	*Net Output*	*Gross Output*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	£ *Million*	£ *Million*	£ *Million*	£ *Million*	000 H.P.	£ *Million*	£ *Million*	£ *Million*	£ *Million*
A. (1) Mining	17.0	6.1	8.2	2.7	82.0	1.2	0.4	4.1	5.3
(2) Electricity	21.0	6.7	13.3	1.0	700.0	0.9	0.6	3.3	4.2
B. Building	34.0	12.0	10.0	12.0	40.0	30.0	1.0	30.0	60.0
C. Manufacturing	99.8	34.0	37.5	28.3	671.0	93.3	5.3	52.6	145.9
SUB-TOTAL: (A to C)	171.8	58.8	69.0	44.0	1493.0	125.4	7.3	90.0	215.4
D. Services[1]	58.2	24.2	23.0	11.0	149.0	31.3	2.2	31.5	62.8
GRAND TOTAL	230.0	83.0	92.0	55.0	1642.0	156.7	9.5	121.5	278.2

[1] Services are taken as a percentage of the Sub-Total (A to C) in the previous line as follows: col. (2) ca. 34 per cent; col. (3) ca. 41 per cent; col. (4) ca. 33 per cent; col. (5) 25 per cent; col. (6) 10 per cent; col. (7) 25 per cent; col. (8) 30 per cent; col. (9) 35 per cent, and col. (10) ca. 29 per cent.

TABLE IX: PRODUCTION PROGRAMME—*continued*

II. DETAILS: MANUFACTURING

£ Million

Industry	*Capital*				*Power Installed*	*Annual Flow of*			
						Materials Consumed			
	Total	*Land and Buildings*	*Plant and Machinery*	*Working Capital*		*Total*	*Of which Fuel & Electric Energy*	*Net Output*	*Gross Output*
(1)	(2)	(3)	(4)	(5)	(6) 000 H.P.	(7)	(8)	(9)	(10)
1. Food, Drink, and Tobacco	24.7	7.6	9.5	7.6	133.0	30.4	1.0	11.4	41.8
2. Clothing and Bedding	9.6	4.3	1.5	3.8	24.0	8.6	0.2	5.8	14.4
3. Textiles	14.4	4.3	5.8	4.3	96.0	14.4	0.7	7.2	21.6
4. Leather, Fur, and Rubber	1.0	0.4	0.3	0.3	9.0	1.6	0.1	0.6	2.2
5. Chemicals (incl. Gas, Coke, and Petrol)	7.0	1.5	3.9	1.6	28.0	4.4	0.3	2.6	7.0
6. Paper, Stationery, and Printing	6.3	2.2	2.8	1.3	49.0	3.1	0.3	3.9	7.0
7. Furniture and Woodwork, Pottery and Glass, Miscel.	7.0	3.5	2.1	1.4	52.5	7.0	0.5	5.2	12.2
8. Building Materials (incl. Timber)	7.2	2.5	3.1	1.6	82.0	4.7	0.5	3.5	8.2
9. Light Metal and Electrical Products	6.0	2.0	2.0	2.0	41.0	4.9	0.3	3.7	8.6
10. Semi-manufactured Metals and Engineering	10.8	4.3	3.7	2.8	77.5	5.6	0.5	5.3	10.9
11. Metal Extraction and Refining	5.8	1.4	2.8	1.6	79.0	8.6	0.9	3.4	12.0
TOTAL	99.8	34.0	37.5	28.3	671.0	93.3	5.3	52.6	145.9

CHAPTER III

THE FLOW OF DEMAND AND THE ADJUSTMENT OF PRODUCTION (MODEL III)

I. THE CONSTITUENT PARTS AND THE SCHEME OF THE CIRCULAR FLOW

THE Production Programme gives us a summary of the goods and services supplied by the new industries. We now turn to the demand generated by the process of expansion. Our intention is to confront the two streams and to adjust the flow of production to the structure of demand.

In the field of demand it has been even more difficult than before to give a realistic picture without a long and detailed study of the technical and economic conditions likely to prevail in any particular area. We must therefore warn the reader again not to regard these figures as actual estimates for the post-war economy of S.E. Europe. They are illustrative symbols, to which we have endeavoured to give as reasonable and plausible a shape as time and data allowed.

The construction of the demand side of the model must be preceded by an analysis of its constituent parts. The nature of this analysis is determined by the character of the economic and technical problems involved, but the details are a matter of convenience and especially of adapting our method to the data from which we start. The following remarks may help to clarify our procedure.

We have divided the aggregate demand for goods and services into *Demand on Current and on Capital Account.* The former is the demand which alone would exist, if net savings were zero and we had a stationary economy. The Demand on Capital Account, on the other hand, arises from the process of growth, industrialisation, or net investment while this process is going on. It may be objected that a distinction based on zero net investment is highly abstract and unrealistic. But it is very convenient for our purpose, since we want to study the process of industrial expansion in isolation. It is for this reason that our terminology assumes, at any rate in the field of industry and services, zero capital accumulation apart from the industrialisation plan, and hence before its beginning and after its end.

Our second distinction is between *Direct and Derived Demand.* The former is demand for finished goods which are either consumer goods or capital goods. The (direct) demand for finished consumer goods

as well as for those capital goods which are needed for replacing worn-out capital equipment (including buildings, etc.) has been assigned to Current Account, while the direct demand for new capital goods belongs to the Capital Account. Government demand financed from taxation of personal incomes is regarded as direct demand for consumable services on the part of these taxpayers.

The Derived Demand consists of the demand of industrial and service enterprises for the materials and services used up by them. Government demand financed out of corporate taxation has been included in derived demand, i.e. it is regarded as expenditure on services adjudged to be a necessary cost incurred for the sake of production as a whole.[1] Instead of splitting up the derived demand and assigning part to Current and part to Capital Account—which we tried to do at first—we have finally decided for the sake of simplicity to assign the entire derived demand to Current Account. The following diagram shows the circular flow of supply and demand in the new industrial sector created by the expansion. Some items contained in the diagram will become clearer in the course of our exposition.[2]

2. THE DIVISION OF NET OUTPUT

Direct Demand on Current Account—the first component of aggregate demand which we shall have to estimate—is expenditure from incomes paid out to those who derive their living from the new enterprises. It is part of the net output produced as given in Table IX. To compute this part we must know in what proportions the aggregate income of the new sector—i.e. the increment in income created by industrialisation—accrues to the various income categories, and how it is disposed of by them through spending, saving, and taxation. With regard to personal expenditure we would also need information about the income elasticity of the various products. All these factors are subject to the influence of Governmental policies and are therefore arbitrary to a greater or lesser extent. Let us first split up the net output according to its distribution between various recipients. Table X contains our estimate.

[1] There is one exception to this. Of the 10 per cent of the net output of industrial and service enterprises, which are absorbed by taxation, 1 per cent has been allocated to Government construction. This represents new investment by the Government in buildings, etc. It is therefore not really a cost of production, but a transfer of part of the net output to the Government for the purpose of capital accumulation. Hence it should be included in corporate savings rather than in derived demand. Nevertheless we have in our Tables treated it as part of the latter for convenience in calculation.

[2] Item 5 of the diagram is Net Output as defined in Census of Production Statistics; see footnote, p. 36. By deducting both 'Duplication' and those Government services which constitute costs of production, we arrive at item 7: Net Output (or Income) at factor cost.

THE CIRCULAR FLOW OF SUPPLY AND DEMAND

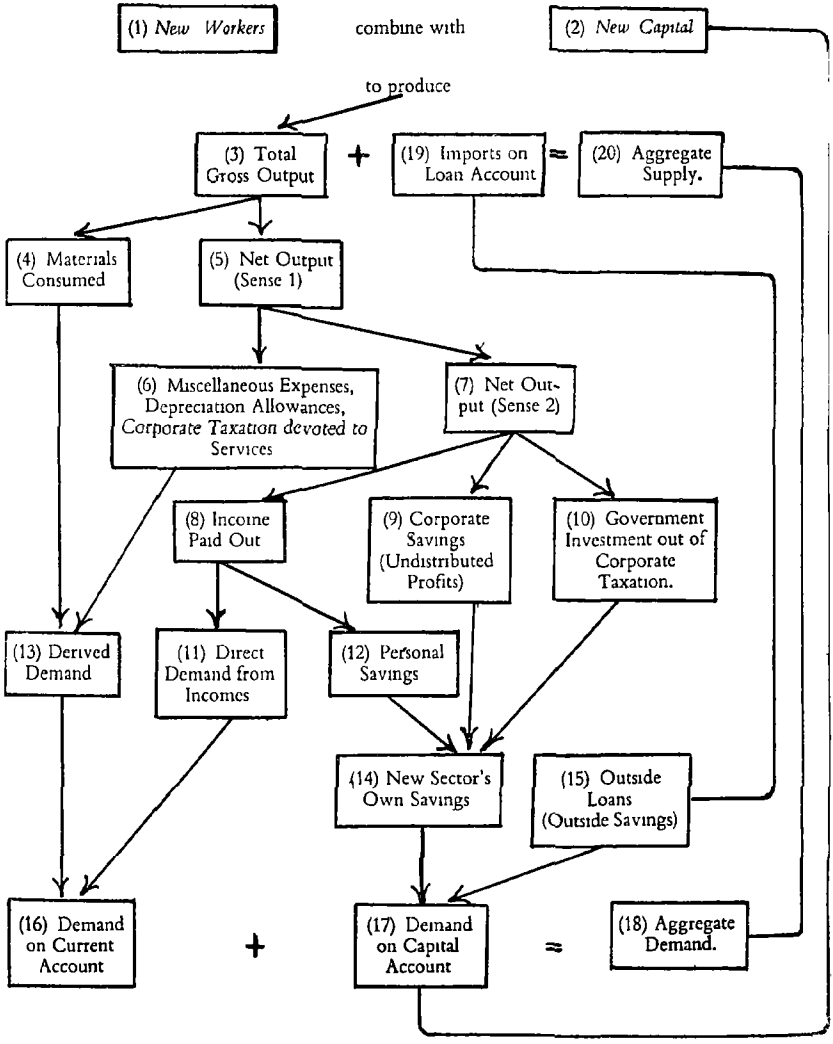


TABLE X

DIVISION OF NET OUTPUT

MODEL II

Category	*Per cent*	*£ million*[1]
Wages and Small Salaries	38	46
Profits (after *corporate* taxation)	30	36.5
Corporate Savings	6	7
Corporate Taxation	10	12.
Duplication[2]	16	20
Total	100	121.5

[1] Annual additions in round figures.

[2] Including replacement allowances (ca. 9 per cent) and miscellaneous expenses, such as insurance and advertising (7 per cent). See also a recent estimate for Canada, which puts duplication at 'one-sixth of the net value of production for the nation at large' D. C. MacGregor, 'Manufacturing Expenses in Canada,' *Review of Econ. Statistics*, May, 1945.

Our division of the average annual addition to net output is based on very incomplete pre-war data. In the past the share of manual workers and of recipients of small salaries in the net output of the non-agricultural sector seems to have been lower in S.E. Europe than in the industrial sector of most developed countries, which is explained partly by the fairly high degree of monopoly in the former area, but mainly by the low level of money wages relative to material costs.[1] In our region this share must have been between 30 and 35 per cent on the average, but we assume that the necessity of offering an inducement to leave the land will lead to some rise in that proportion. We have therefore based our calculation on an average figure of 38 per cent of the net output going to wages and (small) salaries.

Corporate savings, or undistributed profits, absorb in our scheme about 6 per cent of the net output of the new sector. Corporate taxation, or taxes levied on business enterprises, were put at 10 per cent, as a round figure. There remain two items in the above Table: incomes paid out other than wages (and small salaries), here called, for short, profits, and the item called 'duplication.'

The latter is not part of the true net output, but because of the difficulties of eliminating it with any accuracy it is normally included in net output statistics of the Census of Production type. For the purpose of computing the direct demand, however, it must be deducted (and transferred to derived demand). It is composed of two parts. One part is formed by the depreciation and replacement allowances on fixed capital. These we have taken as 8 per cent of the value of

[1] Cf. M. Kalecki's *Studies in Economic Dynamics*, 1943, Part I.

plant and machinery and 4 per cent of the value of land and buildings. The two together form about 9 per cent of net output.[1] The second part of 'duplication' consists of miscellaneous expenses, mostly on services such as insurance and advertising. We have estimated it on the basis of such scanty data as exist at 7 per cent of net output. Total duplication, therefore, amounts to 16 per cent of net output. This leaves for 'profits' paid out, after corporate taxation, a residual figure of 30 per cent of the combined net output of the new industries and services. 'Profits,' it may be noted again, contain in our classification—in addition to profits proper—all higher salaries as well as incomes of independents, professional earnings, etc.

The average annual addition to Demand from Net Output has now been determined as follows:

TABLE XI

ANNUAL ADDITION TO DEMAND FROM NET OUTPUT

MODEL II

	£ *million*	*In per cent of Total*
Direct Demand from Incomes:		
Wages and Small Salaries	46	38
Other Incomes ('Profits')	36.5	30
Total Addition to Direct Demand[1]	82.5	68
Derived Demand from Business Enterprises:		
Corporate Taxation	12	10
Duplication	20	16
Total Addition from Net Output to Derived Demand	32	26
Total Addition from Net Output to Demand on Current Account[1]	114.5	94
Net Corporate Savings, corresponding to Demand on Capital Account	7	6
Total Addition to Net Output	121.5	100

[1] Ignoring for the moment personal savings; these will later be deducted from (Direct) Demand on Current Account.

3. THE DEMAND ON CURRENT ACCOUNT

We shall analyse in the following chapters first the two components of the Demand on Current Account—Direct and Derived Demand—and then the Demand on Capital Account. This analysis will give us the list of goods wanted by producers and consumers. We shall then

[1] Replacement and maintenance seem to have been equivalent in the past—i.e. in the 'thirties'—to about 7 per cent of the combined net national income of the countries of S.E. Europe. We assume a higher figure for the industrial sector.

be able to adjust the production of the various industries to the demand for their products. Our first step is to estimate that part of the direct demand on current account which originates from wages and small salaries.

(*a*) *Direct Demand. Expenditure Budgets*

(i) *Wage- and Small Salary-Earners*—On the basis of various inquiries into working-class and similar budgets in several S.E. European countries between the two wars, we have compiled a hypothetical budget of wage- and small salary-earners. It is presented in Table XII.

TABLE XII

ANNUAL EXPENDITURE OF WAGE- AND SMALL SALARY-EARNERS ON GOODS AND SERVICES

MODEL II

Item	*Spent by W.- and S.-Earners*		*'Margin'*	*Received by Producers*
	Per cent	*£ million*	*£ million*	*£ million*
(1)	(2)	(3)	(4)	(5)
A. GOODS				
I. *Consumption*				
Food (1) processed	35	16.10	4.00	12.10
(2) unprocessed	15	6.90	1.35	5.55
Clothing and bedding	10	4.60	0.90	3.70
Textile material, etc.	3	1.40	0.25	1.15
Furniture and household goods	3	1.40	0.25	1.15
Mineral, fuel, and electricity	3	1.40	0.25	1.15
Firewood	2	0.90	0.20	0.70
Miscellaneous Goods	3	1.40	0.30[1]	1.10[1]
Sub-Total: Consumption	74	34.10	7.50	26.60
II. *Capital*				
Rent (incl. rates, except in last column)	11	5.00	1.00	4.00
Savings	3	1.40	—	1.40
Sub-Total: Capital	14	6.40	1.00	5.40
A. Sub-Total: Goods	88	40.50	8.50	32.00
B. SERVICES				
Direct taxes	2	0.90	—	0.90
'Margin'	—	—	—	9.10
'Fees'	10	4.60	0.60	4.00
B. Sub-Total: Services	12	5.50	0.60	14.00
A+B: GRAND TOTAL	100	46.00	9.10	46.00

[1] Discrepancy due to rounding-off.

NOTE—The 'margin' consists of that part of retail prices which represents distribution, transport, and indirect taxation. 'Fees' are direct payments for services from family budgets.

The expenditures on the principal items in the budget are expressed in the first column of this Table as percentages of gross income.[1] These proportions have then been applied to the total of one year's addition to the wage- and salary-bill, as given in Table X. Expenditure has been divided first into expenditure on 'goods' and on 'services.' The former consists of expenditure on consumption goods and expenditure on rents and savings. The items under 'consumption goods' are self-explanatory; it may perhaps be pointed out that processed food includes most kinds of meat (since abattoirs are a type of industrial establishment) as well as drink and tobacco.

Rents (actual and imputed), including rates, and savings will be found in our Table under the heading 'Capital,' although neither of these items normally represents actual expenditure on capital goods on the part of the wage- and salary-earner. But rent is an expenditure which *corresponds* (apart from the site value) to the construction and maintenance of dwellings, while savings are, similarly, the counterpart of investment in other capital goods.

The three items under the heading of Services call for some explanation. Direct taxes have been treated as representing the demand of the taxpayer for the services financed by the Government out of these taxes. 'Fees' are direct payments for services, such as entertainment, postage, fares, or insurance premiums. The 'margin' consists of that part of retail prices which represents distribution, transport, and indirect taxation (as well as rates in the case of rents). By deducting this margin from the actual expenditure of the wage-earners (col. 3), we shall obtain the receipts of the producers of the various goods and services bought (col. 5). Hence the next step was the calculation of the margin.

In the absence of adequate data for a realistic calculation, the 'margin' has been determined by two considerations. First, its order of magnitude had to be such as to make reasonable allowance for its three components, viz. distribution, transport of the finished products and indirect taxation. Secondly, the resulting share of payments for services in total outlay had to be plausible and not *too* high compared with the supply of services as given in the Production Programme (Table IX,

[1] For comparison see the 'International Survey of Recent Family Living Studies' published in *International Labour Review*, 1939. Note that the budgets analysed in this 'Survey' show the distribution of consumption outlay only, while our budget includes direct taxes and savings. Also, we have assumed for our area a somewhat higher average level of real wages than prevailed during the period covered by the 'Survey.'

col. 10). Our estimate of the total ultimate expenditure on services from wages and small salaries is £14 million, equal to about 30 per cent of the annual addition to the wage- and salary-bill (£46 million). Subtracting from this the immediate expenditure on direct taxes and 'fees,' as given in the budget, we obtained the sum of £8·50 million for the total margin on 'goods.' We may add—in parenthesis—that this is certainly a much lower figure than the actual margins in S.E. Europe which, according to all information, are very high compared with Western standards. Our estimate, therefore, presupposes large improvements in the transport and particularly in the marketing services. Even such improvements may not reduce the margin to our planned level. In that case services would absorb a higher proportion of total outlay than would be compatible with our labour allocation (considering that few services can be imported or borrowed from abroad). Hence this labour allocation would have to be changed in favour of services—at the expense of the production of goods—or the demand for certain services would have to be rationed or restricted by other means. These considerations show the great importance of the rationalisation of the service sector.

It remained to distribute the margin over the various items. This distribution is bound to vary according to circumstances. To avoid unnecessary complications we have only made one assumption, namely that indirect taxation will fall most heavily on processed foods (including drink and tobacco). Hence we allocated to the margin on this particular item 5 per cent of the direct expenditure under this head[1] and distributed the remainder[2] proportionately among all 'goods,' including processed foods as well as rent (where the margin represents rates or similar payments), but excluding savings. Finally, for the sake of completeness, we allocated to 'fees' a margin proportionately lower than that on goods, since taxation alone among the constituent parts of the margin is likely to be as heavy on services as on goods. (This allocation does not affect the total ultimate expenditure on services.) We then deducted the margin (col. 4) from the direct expenditure of the wage- and salary-earners (col. 3) and thus arrived at the average annual addition to the sales receipts of producers (col. 5).

(ii) '*Profit-Earners*'—Information about the expenditure of 'profit-earners' is scanty. They form a very heterogenous group whose outlay varies with circumstances. The following budget estimates are therefore highly conjectural.

[1] 5 per cent of £16.10 million = £0.805 million.
[2] £8.50 million — £0.80 million = £7.70 million.

TABLE XIII

PROBABLE EXPENDITURE OF 'PROFIT-EARNERS' ON GOODS AND SERVICES

MODEL II

Item	*Spent by Profit-Earners*		*'Margin'*	*Received by Producers*
	Per cent	*£ million*	*£ million*	*£ million*
(1)	(2)	(3)	(4)	(5)
A. GOODS				
I. *Consumption*				
Food (1) processed	20	7.30	1.95	5.35
(2) unprocessed	8	2.90	0.65	2.25
Clothing and bedding	9	3.25	0.70	2.55
Textile materials, etc.	2	0.75	0.15	0.60
Furniture and household goods	6	2.20	0.45	1.75
Mineral, fuel, and electricity	4	1.45	0.30	1.15
Firewood	1	0.35	0.10	0.25
Miscellaneous Goods	6	2.20	0.45	1.75
Sub-Total: Consumption	56	20.40	4.75	15.65
II. *Capital*				
Rent (incl. rates, except in last column)	10	3.65	0.80	2.85
Savings	12	4.40	—	4.40
Sub-Total: Capital	22	8.05	0.80	7.25
A. Sub-Total: Goods	78	28.45	5.55	22.90
B. SERVICES				
Direct Taxes	7	2.55	—	2.55
'Margin'	—	—	—	6.25
'Fees'	15	5.50	0.70	4.80
B. Sub-Total: Services	22	8.05	0.70	13.60
GRAND TOTAL	100	36.50	6.25	36.50

NOTE.—The 'margin' consists of that part of retail prices which represents distribution, transport, and indirect taxation. 'Fees' are direct payments for services from family budgets.

The various items and columns of this Table have been computed in exactly the same way as in the preceding Table. It will be seen that the proportion of income spent on food is much lower, while that devoted to miscellaneous goods, savings, direct taxes, and fees is higher than in the case of wage-earners. As to the 'margin,' care has been taken that it should not be much higher, as a proportion of expenditure on goods (excluding savings), than in the previous Table. The last column has again been obtained by deducting the margin

from direct expenditure; it represents the average annual addition to the receipts of producers from sales to 'profit-earners.'

Before we combine the two budgets (which after deduction of savings will give us the total bill of goods and services demanded by the consumers), we turn to the Derived Demand.

(*b*) *The Derived Demand*

The Derived Demand consists of three components. The first is the expenditure of business enterprises and public services on materials consumed, as given in the Production Programme. The second and third are parts of the (uncorrected) net output, namely duplication, i.e. miscellaneous expenses and depreciation allowances which between them add up to 16 per cent of net output, and corporate taxation, equal to 10 per cent of net output; it will be remembered that we have regarded the expenditure from corporate taxation as demand of the taxed firms for services which represent costs of production.[1] The total annual addition to derived demand, therefore, is as follows (in round figures):

Materials Consumed (Table IX) - -	£157 million p.a.
Duplication (Table X) - -	£20 million p.a.
Corporate Taxation (Table X) - -	£12 million p.a.
Total Addition to Derived Demand -	£189 million p.a.

We must now determine the distribution of this expenditure among the various products. To be able to do this realistically, we would need detailed knowledge of the input-output relationships of the various industries.[2] But no such information is available. In order to avoid exclusive reliance upon arbitrary allocations of the inter-industrial demand, we have used certain standard principles of computation and have applied them uniformly (with one exception) to all groups, although in practice the latter would differ among themselves and only average out to something corresponding to our rules.

The demand of each industrial group for the products of the others was calculated from the Production Programme as follows:[3]

[1] Later we shall deduct from this part of the derived demand an amount equivalent to 1 per cent of net output to allow for Government investment out of corporate taxation. See footnote (1), p. 41, and item (10) of the Circular Flow.

[2] For a treatment of very similar problems, cf. W. W. Leontief, 'Output, Employment, Consumption and Investment,' *The Quarterly Journal of Economics*, February, 1944.

[3] The percentages used in the following exposition (in the text) are derived from previous assumptions or calculations. Thus:

(*a*) Replacement demand has been taken as 4 per cent of the value of land and buildings

Demand for Group A, Minerals and Electricity (from any Group; say, X)= Minerals and Electricity consumed by X *plus* any additional allowances (e.g. in Chemicals and Metal Extraction); *less* 10 per cent for transport, etc.

Demand for Group B, Building and Construction (from X)=4 per cent of Land and Buildings of X (replacement and repair of buildings) *plus* 1 per cent of Net Output of X (Government construction financed from taxation) *plus* any additional allowances (demand for subcontracting in building, up-keep of roads, bridges, etc.); *less* 10 per cent for transport.

Demand for Group C, Manufacturing (from X)=Grand Total of X (see below) *less* all other groups combined.

Demand for Group D, Services (from X)=17 per cent of Net Output of X[1] *less* 10 per cent for transport, *plus* 10 per cent of Grand Total of X (for transport) *plus* any additional allowances (duplication within the Group Services).

Demand for Group E, Agriculture (from X): Arbitrary allocation.

Grand Total Demand for Groups A to E (from X)=Materials consumed by X *plus* demand (of X) for Group B before deduction of 10 per cent and, in the case of demand *from* B, excluding duplication (replacement and repairs of Buildings and construction), *plus* 8 per cent of Plant and Machinery of X (replacement) *plus* 17 per cent of Net Output of X.[1]

Subdivision of Group C, Manufacturing:

Demand for Group 10, Semi-Manufactured Metals and Engineering (from X) =8 per cent of Plant and Machinery of X (for replacement) *plus* 4 per cent of Net Output of X (repairs to plant, etc.);[2] *less* 10 per cent for transport; *plus* any additional allowances.

Demand for all other Groups: Arbitrary allocations.

The procedure is to compute first those items, which can be calculated directly from the Production Programme, and then to obtain the others. Thus:

and 8 per cent of the value of plant and equipment, in accordance with our Division of Net Output (see text to Table X).

(*b*) In analogy to the 'margin' in the budgets, 10 per cent of the entire derived demand was allocated to services in respect of transport and distribution costs of raw materials and semi-finished goods.

(*c*) Corporate taxation for the entire new sector amounts to 10 per cent of net output. But we have assumed that corporate taxation of services, which include the machinery of Government (not subject to taxation), is only 7 per cent of their net output. Hence, to preserve the average, corporate taxation of industry was raised to 11 per cent.

(*d*) It is further assumed that out of the proceeds from corporate taxation an amount equivalent to 1 per cent of net output is devoted to Government investment (and not to the provision of services); see footnote, p. 41. It follows that the demand for services from corporate taxation of industry is 11–1=10 per cent of net output, while the demand for services from corporate taxation of services is 7–1=6 per cent of net output.

[1] Namely: Miscellaneous expenses on services such as advertising and insurance, amounting to 7 per cent of net output (cf. p. 44), *plus* demand for services from corporate taxation equal to 10 per cent of net output. The exception is the demand for services *from* services which is 13 per cent of their net output, namely 7 per cent for miscellaneous expenses *plus* (7–1)= 6 per cent for taxation devoted to the provision of services (cf. the preceding footnote).

[2] This last item (repairs) is not contained in the net output figures, but in those of materials consumed. It is expressed here in terms of net output as a convenient index of the firm's activity.

TABLE XIV

DERIVED DEMAND

AVERAGE ANNUAL ADDITION, MODEL II

£ Million

From Groups—	*A*	*B*	*C*	*Total A to C*	*D*	*Total A to D*
For—						
A. Minerals and Electricity	0.90	1.45	15.30	17.65	2.00	19.65
B. Building and Construction	0.50	7.45	1.60	9.55	2.05	11.60
C. Manufacturing	2.55	19.55	44.05	66.15	25.80	91.95
D. Services	1.70	8.25	18.70	28.65	9.65	38.30
E. Agriculture	—	—	27.50	27.50	—	27.50
TOTAL, A to C	3.95	28.45	60.95	93.35	29.85	123.20
TOTAL, A to D	5.65	36.70	79.65	122.00	39.50	161.50
TOTAL, A to E	5.65	36.70	107.15	149.50	39.50	189.00
1. Food, Drink, and Tobacco	—	—	1.60	1.60	—	1.60
2. Clothing and Bedding	—	—	0.50	0.50	2.00	2.50
3. Textiles	—	0.05	12.10	12.15	1.75	13.90
4. Leather, Fur, and Rubber	—	0.05	2.75	2.80	3.00	5.80
5. Chemicals (incl. Gas, Coke, and Petrol)	—	1.30	4.85	6.15	6.00	12.15
6. Paper, Stationery, and Printing	0.05	0.25	2.55	2.85	4.50	7.35
7. Furniture and Woodwork, Pottery and Glass, Miscellaneous	0.10	1.50	4.10	5.70	3.50	9.20
8. Building Materials (incl. Timber)	0.40	10.50	2.40	13.30	0.80	14.10
9. Light Metal and Electrical Products	0.10	0.70	1.80	2.60	1.45	4.05
10. Semi-manufactured Metals and Engineering	1.90	5.20	10.00	17.10	2.80	19.90
11. Metal Extraction and Refining	—	—	1.40	1.40	—	1.40
TOTAL: Manufacturing	2.55	19.55	44.05	66.15	25.80	91.95

STAGE II. TABLE XIV: DERIVED DEMAND—*continued*

From Groups—	1	2	3	4	5	6	7	8	9	10	11	*Total Manufacturing*
For—												
A. Minerals and Electricity	0.90	0.20	0.65	0.10	1.45	0.25	1.80	2.25	0.25	0.45	7.00	15.30
B. Building and Construction	0.35	0.20	0.20	—	0.10	0.10	0.15	0.10	0.10	0.20	0.10	1.60
C. Manufacturing	7.15	7.45	9.00	0.40	2.50	1.75	4.70	1.00	4.30	4.85	0.95	44.05
D. Services	5.10	1.90	2.75	0.25	0.90	1.00	1.60	1.10	1.15	1.50	1.45	18.70
E. Agriculture	20.00	0.20	3.75	1.00	0.30	1.00	—	1.25	—	—	—	27.50
TOTAL, A to C	8.40	7.85	9.85	0.50	4.05	2.10	6.65	3.35	4.65	5.50	9.05	60.95
TOTAL, A to D	13.50	9.75	12.60	0.75	4.95	3.10	8.25	4.45	5.80	7.00	9.50	79.65
TOTAL, A to E	33.50	9.95	16.35	1.75	5.25	4.10	8.25	5.70	5.80	7.00	9.50	107.15
1. Food, Drink, and Tobacco	1.60	—	—	—	—	—	—	—	—	—	—	1.60
2. Clothing and Bedding	—	0.50	—	—	—	—	—	—	—	—	—	0.50
3. Textiles	0.20	4.25	7.00	—	0.05	0.05	0.30	0.05	0.15	0.05	—	12.10
4. Leather, Fur, and Rubber	0.15	1.80	—	0.20	0.05	—	0.15	—	0.10	0.25	0.05	2.75
5. Chemicals (incl. Gas, Coke and Petrol)	0.70	0.20	1.10	0.15	1.75	0.15	0.15	0.10	0.10	0.10	0.35	4.85
6. Paper, Stationery, and Printing	0.80	0.10	0.15	—	0.05	1.15	0.10	0.05	0.05	0.05	0.05	2.55
7. Furniture and Woodwork, Pottery and Glass, Miscellaneous	1.70	0.20	0.05	—	0.10	0.05	1.40	0.05	0.30	0.20	0.05	4.10
8. Building Materials (incl. Timber)	—	—	—	—	0.10	—	1.85	0.40	—	—	0.05	2.40
9. Light Metal and Electrical Products	0.90	0.10	—	—	0.05	—	0.20	—	0.40	0.05	0.10	1.80
10. Semi-manufactured Metals and Engineering	1.10	0.30	0.70	0.05	0.35	0.35	0.55	0.35	3.20	2.75	0.30	10.00
11. Metal Extraction and Refining	—	—	—	—	—	—	—	—	—	1.40	—	1.40
TOTAL: Manufacturing	7.15	7.45	9.00	0.40	2.50	1.75	4.70	1.00	4.30	4.85	0.95	44.05

Calculate (Demand for) A and B provisionally, i.e. subject to revision on account of arbitrary allocations.

Then calculate Grand Total and obtain D.

Obtain (C+E) and calculate 10 provisionally.

Deduct 10 from (C+E) and distribute the remainder among groups E and C (1 to 9 and 11), having regard to available information about the probable relative importance of the groups.

Adjust arbitrary allocations in A, B, and D accordingly, and obtain final version for all figures. For details and illustration see *Appendix C*.

In several instances we were able to make a rough check on the relative orders of magnitude of our allocations, and found them to be within sufficiently reasonable limits for the purpose of our illustration. This is less true of some than others; for instance the demand for products of Group 11 (Metal Extraction and Refining) has probably been put too low.

By adding up the demand for each group of products from each industry, we obtained again the total derived demand. The results of our calculations are shown in Table XIV.

(c) *Total Current Account*

The derived demand was then combined with the direct demand from the budgets to give the total annual addition to Demand on Current Account. But the personal savings, both of wage- and profit-earners (included in the budgets), had to be deducted for this purpose: they are not part of what we called Demand on Current Account. The resulting total and the break-up are given in Table XV where the average annual addition to the Demand (for Gross Output) on Current Account works out at about £265 million. This is item 16 of the Circular Flow. Our Table shows how this annual expenditure is distributed among the various products.

TABLE XV—DEMAND ON CURRENT ACCOUNT
AVERAGE ANNUAL ADDITION, MODEL II. £ Million

Demand for Products of Groups	*Direct Demand from*		*Derived Demand from*		*Total*
	Wage- and Salary-Earners	*Profit-Earners*	*Industry (A to C)*	*Services (D)*[1]	
(1)	(2)	(3)	(4)	(5)	(6)
I. SUMMARY					
A. Minerals and Electricity	1.15	1.15	17.65	2.00	21.95
B. Building and Construction	4.00[3]	2.85[3]	9.55[4]	2.05[5]	18.45
C. Manufacturing	19.20	12.00	66.15	25.80	123.15
D. Services[1]	14.00	13.60	28.65	9.65	65.90
E. Agriculture[2]	6.25	2.50	27.50	—	36.25
TOTAL, A to C	24.35	16.00	93.35	29.85	163.55
TOTAL, A to D	38.35	29.60	122.00	39.50	229.45
TOTAL, A to E	44.60	32.10	149.50	39.50	265.70
II. DETAILS, MINERALS, AND ELECTRICITY					
1. Electricity and Fuel[6]	1.15	1.15	7.00	2.00	11.30
2. Other Non-Metallic Minerals	—	—	4.70	—	4.70
3. Metallic Minerals	—	—	5.95	—	5.95
TOTAL	1.15	1.15	17.65	2.00	21.95
III. DETAILS, MANUFACTURING					
1. Food, Drink, and Tobacco	12.10	5.35	1.60	—	19.05
2. Clothing and Bedding	3.70	2.35	0.50	2.00	8.75
3. Textiles	1.15	0.60	12.15	1.75	15.65
4. Leather, Fur, and Rubber	0.05	0.20	2.80	3.00	6.05
5. Chemicals (incl. Gas, Coke, and Petrol)	0.60	0.70	6.15	6.00	13.45
6. Paper, Stationery, and Printing	0.45	0.60	2.85	4.50	8.40
7. Furniture and Woodwork, Pottery & Glass, Miscel.	0.75	1.40	5.70	3.50	11.35
8. Building Materials (incl. Timber)	—	—	13.30	0.80	14.10
9. Light Metal and Electrical Products	0.40	0.55	2.60	1.45	5.00
10. Semi-Manufactured Metals and Engineering	—	0.05	17.10	2.80	19.95
11. Metal Extraction and Refining	—	—	1.40	—	1.40
TOTAL	19.20	12.00	66.15	25.80	123.15
IV. DETAILS, AGRICULTURE					
1. Foodstuffs (incl. Tobacco)	5.55	2.25	20.00	—	27.80
2. Other Materials (incl. Timber and Firewood)	0.70	0.25	7.50	—	8.45
TOTAL	6.25	2.50	27.50	—	36.25

[1] All industries other than A to C and E. [2] Includes forestry and fisheries.
[3] Rents and their equivalents. Part of these payments do not correspond to building costs. On the other hand, central and local governments will probably subsidise housing and amenities.
[4] Replacement allowances. [5] Replacement allowances, plus upkeep of roads, bridges, etc.
[6] Includes coal used for chemical purposes.

4. THE DEMAND ON CAPITAL ACCOUNT

We now come to the temporary addition to the flow of demand which is caused by the process of industrialisation while it lasts, and which we called Demand on Capital Account; item 17 of the Circular Flow. It is composed first of the required additions to the stock of fixed and working capital of industry and services as calculated in the Production Programme; secondly, of the additions to capital in the form of dwellings, roads, etc., which were estimated in the Building Programme. As these building requirements were computed net of land, we now add to them roughly one fourth to allow for site values (in analogy to our procedure for industrial buildings, cf. p. 28). The total of all items amounts for five years to £1,690 million.

TABLE XVI

DEMAND ON CAPITAL ACCOUNT

MODEL II

Capital Requirements (incl. Land)	*in million £*	
	Annual Addition	*Total, Five Years*
1. Industrial and Service Capital - - -	230	1,150
2. New Dwellings and PublicWorks - - -	86	430
3. Allowance for Land on (2) - - -	22	110
TOTAL, Capital Account - -	338	1,690

This total, which is equivalent to £500 per head, covers private and social, producer's and consumer's capital. It also includes the cost of land which, however, is a mere transfer payment. We shall be able to neglect this item when we discuss in a later chapter the finance of the Plan.

In order to calculate the demand schedules for all industries, we must break up these capital requirements and subdivide them according to the groups of industries whose products are needed for the purpose of capital expansion. As a result we obtain in Table XVII the flow of investment demand to the various producers. The figures must be taken with a grain of salt; some of them are rough guesses rather than genuine estimates.

Our methods of allocating the demand differed for the main groups of Capital, i.e. Land and Buildings, Plant and Machinery, and Working Capital. In the absence of real data, working capital (col. 4) was split up on the unrealistic assumption that the rate of turnover of stocks of

different kinds of goods is more or less the same. Acting on this assumption, we distributed the working capital in proportion to demand, mostly on current account. But in order to reduce errors we divided the total working capital for each industry, very roughly, into three parts: stocks produced by the firms themselves for their own working capital,[1] stocks bought by the firms, and, as a subdivision of the latter, traders' stocks. This enabled us to make such estimates as seemed most appropriate to each part.

Land and Buildings (col. 2) created no difficulty; it was only a matter of subdividing the total between Building and Construction (Group B) on the one hand, and Land (Group F) on the other. Our original assumption was that four-fifths of the combined demand of industry and services for land and buildings was for building and construction. The requirements of industry and services in this respect, therefore, amount for five years, to $5 \times \frac{4}{5} \times £83$ million = £332 million.[2] All other components of the demand for building and construction work—i.e. for dwelling houses and public works—add up for five years to £430 million. Hence the total investment demand for the products of the building and construction industry is £762 million, while the demand for land accounts for £193 million.

With regard to Plant and Machinery (col. 3) we found ourselves in a dilemma. When calculating the derived demand we had allocated the whole of the replacement demand for plant and machinery to the engineering industry (group 10) in order to avoid complications. We therefore had to choose, in constructing the present Table, between the more logical course of following the same procedure, and the somewhat inconsistent but more realistic course of giving a certain proportion of the demand on capital account for new plant and machinery to other groups (7 to 9). We chose the latter and thus obtained our estimate in the following Table XVII.

5. THE SIZE AND DISTRIBUTION OF AGGREGATE DEMAND

The size and distribution of the aggregate demand generated by the first Five Year Plan on the basis of Model II can now be determined. The total for the whole period is fifteen times the average annual addition in the case of Current Account and five times in the case of Capital Account. The reason is that the former is an addition to a *flow* of goods and services which, starting in the first year, will continue in the subsequent years (and hence during what remains of the five

[1] I.e. stocks of goods finished from the point of view of the individual firm, and goods in progress.
[2] The figure of £83 million is the total of column 3, Table IX.

TABLE XVII

SUBDIVISION OF DEMAND ON CAPITAL ACCOUNT FOR PRODUCTS OF ECONOMIC GROUPS

(TOTAL, FIRST FIVE YEAR PLAN, MODEL II)

£ Million

Demand for Products of Industry	*Demand on Account of:*			*Total*
	Land and Buildings	*Plant and Machinery*	*Working Capital*	
(1)	(2)	(3)	(4)	(5)
I. SUMMARY				
A. Minerals	—	—	27.45	27.45
B. Building and Construction	762.00	—	33.75	795.75
C. Manufacturing	—	460.00	178.00	638.00
E. Agriculture	—	—	35.80	35.80
F. Land	193.00	—	—	193.00
TOTAL, A to C	762.00	460.00	239.20	1,461.20
TOTAL, A to E	762.00	460.00	275.00	1,497.00
TOTAL, A to F	955.00	460.00	275.00	1,690.00
II. DETAILS, MANUFACTURING				
1. Food, Drink, and Tobacco	—	—	16.90	16.90
2. Clothing and Bedding	—	—	11.25	11.25
3. Textiles	—	—	31.00	31.00
4. Leather, Fur, and Rubber	—	—	7.95	7.95
5. Chemicals (incl. Gas, Coke, and Petrol)	—	—	18.75	18.75
6. Paper, Stationery, and Printing	—	—	11.80	11.80
7. Furniture, Woodwork, Pottery, and Glass, Miscellaneous	—	0.75	16.20	16.95
8. Building Materials (incl. Timber)	—	14.50	22.35	36.85
9. Light Metal & Electrical Products	—	18.85	9.80	28.65
10. Semi-Manufactured Metals and Engineering	—	425.90	27.00	452.90
11. Metal Extraction and Refining	—	—	5.00	5.00
TOTAL	—	460.00	178.00	638.00

years), while the latter is an addition to a *stock* of capital goods which, once created, remains as long as replacements are made on Current Account. From the Current Account total (£3,985 million) we have deducted the computed expenditure on replacement and upkeep of buildings and plant (£275 million)[1], for it may be assumed that actual replacement demand will be negligible during the first five years. Aggregate demand—the sum of Current and Capital Account —works out on this basis at about £5,400 million. This figure will

[1] The replacement allowances in respect of buildings, roads, bridges, etc., are contained in Table XV, col. 6, line B, those for plant and machinery in the same Table, col. 6, line 10.

be found in col. 4 of the following Table XVIII which summarises the main results of this chapter. It gives us the break-up of the total bill of goods and services demanded at all stages of the productive process for intermediate and final use.

TABLE XVIII

SUBDIVISION OF AGGREGATE DEMAND FOR PRODUCTS OF ECONOMIC GROUPS

(TOTAL, FIRST FIVE YEAR PLAN, MODEL II)

£ Million

Demand for Products of Groups	*Demand from:*		*Aggregate Demand*
	Current Account	*Capital Account*	
(1)	(2)	(3)	(4)
I. SUMMARY			
A. Minerals and Electricity	329.25	27.45	356.70
B. Building and Construction	101.25[1]	795.75	897.00[2]
C. Manufacturing	1,747.90	638.00	2,385.90
D. Services	988.50	—	988.50
E. Agriculture	543.75	35.80	579.55
F. Land	—	193.00	193.00
TOTAL, A to C	2,178.40	1,461.20	3,639.60
TOTAL, A to D	3,166.90	1,461.20	4,628.10
TOTAL, A to E	3,710.65	1,497.00	5,207.65
TOTAL, A to F	3,710.65	1,690.00	5.400.65
II. DETAILS, MANUFACTURING			
1. Food, Drink, and Tobacco	285.75	16.90	302.65
2. Clothing and Bedding	131.25	11.25	142.50
3. Textiles	234.75	31.00	265.75
4. Leather, Fur, and Rubber	90.75	7.95	98.70
5. Chemicals (incl. Gas, Coke, and Petrol)	201.75	18.75	220.50
6. Paper, Stationery, and Printing	126.00	11.80	137.80
7. Furniture, Woodwork, Pottery, and Glass, Miscellaneous	170.25	16.95	187.20
8. Building Materials (incl. Timber)	211.50	36.85	248.35
9. Light Metal and Electrical Products	75.00	28.65	103.65
10. Semi-Manufactured Metals and Engineering	199.90[3]	452.90	652.80
11. Metal Extraction and Refining	21.00	5.00	26.00
TOTAL	1,747.90	638.00	2,385.90

[1] Duplication due to sub-contracting. The discrepancy with the £100 million in Table V, p. 30, is due to rounding-off in that Table.

[2] The discrepancy with the £900 million in Table V, p. 30, is due to the fact that Table V is based on the final version (Model IV).

[3] Excludes replacement allowances in respect of plant and machinery: £99.35 million for five years. They are contained, on an annual basis, in the corresponding Current Account figures of Table XV.

6. DEMAND STREAM AND PRODUCTION STREAM ADJUSTED (MODEL III)

Our aggregate demand for goods and services by far exceeds their supply from home resources. In fact, to satisfy the demand for minerals and electricity and for manufactured goods of all kinds would require an annual addition to the personnel of these Groups (A and C) of well over 400,000,[1] while no more than 300,000 are available for them (because our Building Programme absorbs 200,000 people out of the total industrial intake of 500,000 p.a.). This excess of demand over home output underlines the need for foreign loans. At present, however, we are not interested in this aspect. Even if we had more resources at our disposal, we would still have to change their distribution among the various trades. For our Production Programme was established quite independently of the structure of demand. It was based on what we tentatively regarded as a 'model distribution,' but no attention was paid to specific market requirements (except in building and services). We are now able to introduce a correction and to adjust the programme to demand. We have done this in the following way (see Table XIX).

We have first calculated the number of 'workers' needed in Groups A and C to bring the supply of goods in line with the estimated demand for them (col. 3).[2] From this we have obtained the percentage distribution of the new personnel which corresponds to the structure of demand; we have computed these percentages (in col. 4) on the assumption that a fixed proportion of the total intake is to be devoted to building and to services. We thereby arrived at the labour distribution of Model III, where the man-power available after the building and service requirements have been met from our labour 'pool,' is distributed among the various groups in strict proportion to demand (col. 5). All totals have thus been reduced to what is at our disposal.

Compared with Model II the result is an expansion in mining and electricity production (Group A) and a consequent reduction in manufacturing (Group C). With regard to individual industries, the adjustment to demand necessitated a substantial increase in the production of leather goods, chemicals, building materials, and of semi-manufactured metals and engineering products, while the food, clothing, and

[1] See col. 3 of the following Table.

[2] Col. 2 gives the annual additions to aggregate demand for the various products on the basis of Model II. These additions were obtained by dividing the Current Account figures of Table XVIII by 15 and the Capital Account figures by 5. The number of workers required to meet this demand was calculated on the basis of our Standard Figures of gross output per operative (Table VIII).

TABLE XIX

MODEL III

LABOUR DISTRIBUTION ADJUSTED TO DEMAND[1]

Groups	*Average Annual Addition*		*Percentage Distribution of Personnel*[2]	*Average Annual Addition*	
	Aggregate Demand (Model II)	*Personnel Corresponding to Demand*		*Personnel*[3] *(Model III)*	*Gross Output (Model III)*
(1)	(2)	(3)	(4)	(5)	(6)
	£ Mil.	*No.*	*Per cent*	*No.*	*£ Mil.*
A. MINERALS AND ELECTRICITY	27.44	59,450	8.67	43,350	17.3[4]
B. BUILDING AND CONSTRUCTION			40.00	200,000	60.0
C. MANUFACTURING					
1. Food, Drink, and Tobacco	22.43	18,342	2.68	13,400	14.8
2. Clothing and Bedding	11.00	31,667	4.62	23,100	6.9
3. Textiles	21.85	39,370	5.74	28,700	12.9
4. Leather, Fur, and Rubber	7.64	10,123	1.48	7,400	4.8
5. Chemicals (incl. Gas, Coke, and Petrol)	17.20	14,700	2.14	10,700	10.7
6. Paper, Stationery, and Printing	10.76	18,373	2.68	13,400	6.7
7. Furniture, Woodwork, Pottery and Glass, Miscel.	14.74	35,657	5.20	26,000	9.1
8. Building Materials (incl. Timber)	21.47	41,392	6.04	30,200	12.1
9. Light Metal and Electrical Products	10.73	16,452	2.40	12,000	5.0
10. Semi-manufactured Metals and Engineering	103.91	124,343	18.13	90.650	31.7
11. Metal Extraction and Refining	2.40	1,507	0.22	1,100	1.3
Sub-Total, Manufacturing	244.13	351,926	51.33	256,650	116.0
TOTAL INDUSTRY (A to C)			100.00	500,000	193.3
D. SERVICES			35.00	175,000	57.4[5]
GRAND TOTAL			135.00	675,000	250.7

[1] Demand of Model II.

[2] Taking the inflow into Group A and Group C together as 60 per cent of the total industrial inflow (Group B=40 per cent).

[3] Taking the industrial inflow as 500,000 (=100 per cent).

[4] Combined Standard Figure of £400 gross output per head, on the assumption that one-seventh of the personnel is in electricity production and six-sevenths in mining. (Cf. Models I and II.)

[5] Calculated as in Model II.

textile, furniture and light metal industries as well as metal extraction had to be reduced.[1]

The gross output resulting from this new labour distribution is shown in col. 6 of the Table. But we shall not present here a full Production and Demand Programme; these will be worked out in the final version. Model III is only an intermediate stage. While allowing for the structure of demand, it still entirely ignores the availability of natural resources and the structure of costs. Only when these have been considered can we proceed to our final estimates. Suffice it to note here that capital requirements per head (incl. of land) would amount in Model III to about £385 in industry and services combined, and to £545 if capital expenditure on housing and public works is added. The corresponding all-in figure in Model II was roughly £500. The increase in capital requirements is due to the expansion of mining and electricity production, which need much capital, and also to the re-grouping within manufacturing industry as a result of which the weight of the relatively capital-intensive trades has become higher.[2]

[1] See Table XXI which shows the labour allocation by stages (in all models).
[2] Capital per head in the four models will be shown in Table XXIII on p. 73.

CHAPTER IV

THE FINAL MODEL

1. THE LABOUR DISTRIBUTION: ALLOWANCES FOR REGIONAL AND INTERNATIONAL SPECIALISATION

IN working out our Five Year Plan we first considered the pattern of industry in the nearest more highly developed countries—Austria and Czechoslovakia—and assumed in Model I that the industrialisation of our region would create a similar structure. By allowing for the building requirements of the developing economy we arrived at Model II. The labour distribution was then adjusted to the demand generated by the industrial expansion; the result was Model III. It now remains to consider in Model IV the influence of comparative costs, i.e. the relative scarcity or abundance of resources of minerals, water power, skills, etc., as well as the level of factor prices. It is these factors which will indicate the lines of useful specialisation, given favourable conditions in international markets.

It has not been possible here to make a detailed study of the comparative cost situation which, in any case, is co-determined by policies and expectations.[1] Nevertheless, this factor had to be introduced at least in a rough fashion, and this has been done in the following way:

(*a*) In view of the abundance of cheap and mostly unskilled labour, it may be expected that the countries of S.E. Europe will tend to develop in the first place labour-intensive ('light') industries rather than 'heavy' industries and simple rather than refined and complicated processes. If capital requirements per head of operative are taken as the main criterion, and if industries needing less capital per head than £350 are regarded as 'light,' those requiring £350-600 as 'medium' and the remainder as 'heavy,' we arrive on the basis of our Standard Figures at the following classification:[2]

'*Light*' *Industries*: Building, Clothing, Furniture, Textiles, Leather, Light Metals.

'*Medium*' *Industries*: Building Materials, Semi-manufactured Metals, Paper and Printing, Metal Extraction and Refining.

'*Heavy*' *Industries*: Food, etc., Mining, Chemicals, Electricity.

[1] See Part A of this study.

[2] Instead of using total capital per operative as the criterion, we could also group the various industries according to the value of plant and machinery they employ, but the result would be more or less the same, except that the food industries, although still on the 'heavy' side, would appear somewhat 'lighter' than metal extraction. See the Standard Figures, Table VIII.

In the final version of our model which follows we have tried to give preference to 'light' industries. But this general rule had to be qualified in certain important respects. In fact within Group C (Manufacturing) we have allocated more workers than in Model III to industries which, in our sense, are fairly or very heavy. This applies in the first place to building materials. Except for timber they do not enter international trade on a large scale (because of transport costs) so that the existing demand must be fully covered by local production. This necessitated an expansion of the building material output in our scheme; we have actually increased the allocation beyond what was required to satisfy internal demand,[1] for we have assumed that there is scope for timber exports. Other more or less heavy industries are favoured for similar reasons. Where transport forms a significant cost item, either because the industries concerned consume large amounts of raw materials per unit of output, or because the final product is heavy relative to its value, nearness to the source of materials or to markets is important. In our case the food and chemical industries (or certain sections of them) have obvious advantages on this account, and we have therefore expanded them although they are, on the average, heavy if run on modern lines. We have also assumed that these industries will have scope to expand beyond internal demand, i.e. that they will export to foreign countries (food) or to the old sector (fertilisers). Metal extraction and refining, presumably, is similarly placed in mining areas, and there may also be more scope on these grounds for the production of non-precision machinery (e.g. road making and agricultural machinery). It should be noted that these heavier industries do not necessarily, or in all sections, require more skill than the lighter trades.[2]

Our re-allocation of the manufacturing labour force (Group C) resulted in higher capital requirements per head in the factory trades than in Model III.[3] This procedure is open to the objection that it aggravates the main bottleneck which is in the supply of capital (see later). Hence, in order to rectify the position to some extent, we have reduced employment in Group A (Mining and Electricity) which is the heaviest group. As a consequence of this shift to manufacturing aggregate capital requirements are now lower than in Model III.[4] But we are not sure whether our procedure is fully justified, as far as the reduction in electricity output is concerned. Potential water power is one of the greatest assets of our region which in other respects is not

[1] Internal demand is the demand from within the new sector.
[2] Cf. A. J. Brown, *Industrialisation and Trade*, pp. 32-33.
[3] See Table XXIII, p. 73, which gives capital requirements by stages. [4] See Table XXIII.

too richly endowed with natural resources. The development of power production is, of course, very capital intensive work. But it is a condition of progress, both in industry and agriculture; moreover it might enable certain small-scale industries to improve their methods of production with the help of the electromotor which needs little new investment. From the point of view of employment and productivity, this is an advantage, given the shortage of equipment. It might have been advisable, therefore, to maintain the electricity output of Model III and to assume either that the supply of foreign capital will be adequate to cover the higher requirements; or that some of the more capital-intensive industries mentioned above will have to be sacrificed in view of the capital shortage, although they are otherwise favourably placed; or—what amounts to the same—that certain industries will use simpler equipment than corresponds to our Standard Figures. It is sufficient for our present purpose to point out these alternative routes of industrial policy other aspects of which will occupy us later.

(*b*) The second way in which we have tried to take account of the influence of comparative costs, i.e. of the relative suitability of different areas for different industries, is as follows. Originally we distributed the annual intake of personnel[1] among the countries of our region in proportion to their surplus labour reserves. Now we readjust the pattern by postulating that any surpluses of production over demand should be in certain industries (notably in food, and perhaps in chemicals), that the requirements in building and building materials should be covered, and that any deficits should be concentrated in the remaining heavy industries, mainly semi-manufactured metals and engineering. In carrying out this adjustment, we have modified each country's share in the various industries (groups A and C) in the light of a brief review of its past development and its resources.[1]

Apart from Rumanian Oil, reserves of which are said to be limited, the mineral resources of the region are largely concentrated in Poland (the only part with substantial coal reserves) and Yugoslavia (the part with most metallic minerals). Mountainous areas with little coal, such as Yugoslavia, may be expected to rely to a high degree on water power, i.e. hydro-electricity. We have tried to allow for this in the allocations to mining and electricity. Similarly, chemicals (group 5) and especially semi-manufactured metals and engineering (group 10) have been concentrated in Poland. Rumania comes next in chemicals (petroleum refining and utilisation of natural gas), as well as in group 10 (she has *some* coal and metals). Various agricultural

[1] The concept of 'natural resources' must not be interpreted in a too static way, for 'resources' change with technical developments. Our allocations are, therefore, very tentative; they indicate certain more or less evident lines of expansion, but we are aware that there are frequently alternative lines.

crops form in other countries the basis for the development of chemical industries. Greece has a relatively high share of engineering (group 10) which includes shipbuilding. We envisage a considerable development of metal industries in Yugoslavia, attributable not so much to engineering as to the refining and crude manufacturing of locally mined metals. The relatively low Hungarian figure in group 10 is intended to compensate for over-development in this direction in the past. Paper industries (group 6) are concentrated where there is timber and water-power. The availability of timber (as well as of suitable stone) also influences the regional distribution of group 8 (building materials, including sawmills and the like). In clothing

TABLE XX

FINAL LABOUR DISTRIBUTION

MODEL IV

Industry	*Distribution of Additional Personnel Per Cent*						
	Bulgaria	*Greece*	*Hungary*	*Poland*	*Rumania*	*Yugoslavia*	Total
A. MINERALS AND ELECTRICITY:							
1. Mining	3.6	4.4	4.8	5.9	4.40	6.5	5.40
2. Electricity	0.8	0.8	0.4	0.4	0.40	0.5	0.46
Sub-Total	4.4	5.2	5.2	6.3	4.80	7.0	5.86
B. BUILDING AND CONSTRUCTION	40.0	40.0	40.0	40.0	40.00	40.0	40.00
C. MANUFACTURING:							
1. Food, Drink, and Tobacco	5.2	3.6	5.2	3.8	4.88	5.8	4.6
2. Clothing and Bedding	7.6	8.0	9.6	7.0	6.40	7.7	7.2
3. Textiles	6.0	5.2	4.4	4.0	5.68	7.0	5.2
4. Leather, Fur, and Rubber	3.6	2.8	4.0	1.7	2.48	1.9	2.2
5. Chemicals (incl. Gas, Coke, and Petrol)	3.2	3.2	3.2	5.9	3.84	2.0	4.2
6. Paper, Stationery, and Printing	3.6	3.2	3.2	2.8	5.76	4.7	4.0
7. Furniture and Woodwork, *Pottery and Glass, Miscel.*	*9.2*	*9.6*	*8.4*	*5.8*	*6.88*	*6.0*	*6.6*
8. Building Materials (incl. Timber)	10.0	8.8	7.2	8.7	9.68	10.0	9.2
9. Light Metal and Electrical Products	4.0	4.4	4.8	2.7	3.20	2.3	3.0
10. Semi-manufactured Metals and Engineering	2.8	5.6	4.4	11.0	6.24	5.0	7.6
11. Metal Extraction and Refining	0.4	0.4	0.4	0.3	0.16	0.6	0.34
Total	55.6	54.8	54.8	53.7	55.20	53.0	54.14
TOTAL: Industry (A to C)	100.0	100.0	100.0	100.0	100.0	100.0	100.00
D. SERVICES							35.00
GRAND TOTAL (A to D)							135.00

TABLE XX: FINAL LABOUR DISTRIBUTION—*continued*

Industry	*Numbers (Average Annual Addition)*						
	Bulgaria	*Greece*	*Hungary*	*Poland*	*Rumania*	*Yugoslavia*	Total
A. MINERALS AND ELECTRICITY: (1) Mining	900	1,100	1,200	11,800	5,500	6,500	27,000
(2) Electricity	200	200	100	800	500	500	2,300
Sub-Total	1,100	1,300	1,300	12,600	6,000	7,000	29,300
B. BUILDING AND CONSTRUCTION	10,000	10,000	10,000	80,000	50,000	40,000	200,000
C. MANUFACTURING:							
1. Food, Drink, and Tobacco	1,300	900	1,300	7,600	6,100	5,800	23,000
2. Clothing and Bedding	1,900	2,000	2,400	14,000	8,000	7,700	36,000
3. Textiles	1,500	1,300	1,100	8,000	7,100	7,000	26,000
4. Leather, Fur, and Rubber	900	700	1,000	3,400	3,100	1,900	11,000
5. Chemicals (incl. Gas, Coke, and Petrol)	800	800	800	11,800	4,800	2,000	21,000
6. Paper, Stationery, and Printing	900	800	800	5,600	7,200	4,700	20,000
7. Furniture and Woodwork, Pottery and Glass, Miscellaneous	2,300	2,400	2,100	11,600	8,600	6,000	33,000
8. Building Materials (incl. Timber)	2,500	2,200	1,800	17,400	12,100	10,000	46,000
9. Light Metal and Electrical Products	1,000	1,100	1,200	5,400	4,000	2,300	15,000
10. Semi-manufactured Metals and Engineering	700	1,400	1,100	22,000	7,800	5,000	38,000
11. Metal Extraction and Refining	100	100	100	600	200	600	1,700
Total	13,900	13,700	13,700	107,400	69,000	53,000	270,700
Total: Industry (A to C)	25,000	25,000	25,000	200,000	125,000	100,000	500,000
D. SERVICES							175,000
GRAND TOTAL (A to D)							675,000

TABLE XXI
CONSTRUCTION OF THE LABOUR DISTRIBUTION
BY STAGES

Industry / *Model*—	*Per Cent* (*A to C*=100)				*Numbers* (*Average Annual Addition*)			
	I	II	III	IV	I	II	III	IV
A. MINERALS AND ELECTRICITY:								
1. Mining	6	4.1	—	5.4	30,000	20,500	—	27,000
2. Electricity	1	0.7	—	0.46	5,000	3,500	—	2,300
Sub-Total	7	4.8	8.67	5.86	35,000	24,000	43,350	29,300
B. BUILDING AND CONSTRUCTION	13	40.0	40.00	40.00	65,000	200,000	200,000	200,000
C. MANUFACTURING:								
1. Food, Drink, and Tobacco	11	7.6	2.68	4.6	55,000	38,000	13,400	23,000
2. Clothing and Bedding	14	9.6	4.62	7.2	70,000	48,000	23,100	36,000
3. Textiles	14	9.6	5.74	5.2	70,000	48,000	28,700	26,000
4. Leather, Fur, and Rubber	1	0.7	1.48	2.2	5,000	3,500	7,400	11,000
5. Chemicals (incl. Gas, Coke, and Petrol)	2	1.4	2.14	4.2	10,000	7,000	10,700	21,000
6. Paper, Stationery, and Printing	4	2.8	2 68	4.0	20,000	14,000	13,400	20,000
7. Furniture, Pottery, and Glass, Miscellaneous	10	7.0	5.20	6.6	50,000	35,000	26,000	33,000
8. Building Materials (incl. Timber)	6	4.1	6.04	9.2	30,000	20,500	30,200	46,000
9. Light Metal and Electrical Products	6	4.1	2.40	3.0	30,000	20,500	12,000	15,000
10. Semi-Manufacturing Metals & Engineering	9	6.2	18.13	7.6	45,000	31,000	90,650	38,000
11. Metal Extraction and Refining	3	2.1	0.22	0.34	15,000	10,500	1,100	1,700
Sub-Total	80	55.2	51.33	54.14	400,000	276,000	256,650	270,700
Total, Industry (A to C)	100	100.0	100.00	100.00	500,000	500,000	500,000	500,000
D. SERVICES	43	35.0	35.00	35.00	215,000	175,000	175,000	175.000
GRAND TOTAL (A to D)	143	135.0	135.00	135.00	715,000	675,000	675,000	675,000

(group 2) and in leather, fur, and rubber (group 4) Hungary has an established industry, which might well be developed further. The concentration of food industries (group 1) in such countries as Hungary and Yugoslavia requires no comment; in Bulgaria the basis is the local production of tobacco, as well as of specialised fruit, including wine-growing. The relevant Polish figure is low because of the concentration in that country of the heavy coal-consuming industries. These are merely rough examples of the kind of considerations involved. They could not be based on detailed studies of local conditions, and much will depend on outside factors, for example on the extent of trade with the Soviet Union (e.g. coal imports to Bulgaria or Greece from the Donbas).

We have not made differential allocations in building and construction, as the differences would have been small and unpredictable without studying local transport, housing conditions, etc. Similarly, we have not split up the personnel going into services by countries.

The sum-total of the adjustments mentioned under (*a*) and (*b*) gives us in Table XX the final labour distribution: Model IV. It will be seen that the building materials industry, followed by semi-manufactured metals and engineering and by the clothing industry, have the highest share in the new labour force allocated to manufacturing, although the order is not the same in all constituent countries. The various stages by which we have arrived at this final version are shown in Table XXI.

2. THE PRODUCTION PROGRAMME

As before, we now multiply our personnel figures with the Standard Figures of capital, output, etc. per head and thereby obtain in Table XXII the final Production Programme, showing the average annual addition to capital, power installed, and to the flow of materials consumed and of output in Model IV. We have given the Table in two parts. Part A shows the results by countries, giving under (I) the summary totals for all industries together and for services, and under (II) the gross output for each major industrial group. Part B presents the results by industries in the same way as in Model II.

It appears that, if the size of the various industries is measured by their net output, the largest increase for the region as a whole among the factory trades is in chemicals and building materials, followed by the food industries.

(See Table XXII, A and B)

TABLE XXII

PRODUCTION PROGRAMME, MODEL IV

AVERAGE ANNUAL ADDITION TO CAPITAL, POWER, AND THE FLOW OF MATERIALS, AND OUTPUT

A. BY COUNTRIES

I. SUMMARY

Industry or Country	*Capital*				*Power Installed*	*Annual Flow of*			
						Materials Consumed			
	Total	*Land and Buildings*	*Plant and Machinery*	*Working Capital*		*Total*	*Of which Fuel and Electric Energy*	*Net Output*	*Gross Output*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	£ Million				*000 H.P.*	*£ Million*			
Industry (A to C):									
Bulgaria	8.8	3.0	3.6	2 2	80.6	6.1	0.4	4.5	10.6
Greece	8.7	3.0	3.6	2.1	79.8	5.7	0.4	4.5	10.2
Hungary	8.3	2.9	3.2	2.2	59.5	5.9	0.3	4.5	10.4
Poland	71.6	24.2	29.5	17.9	505.4	46.2	2.8	36.5	82.7
Rumania	42.7	14.6	17.3	10.8	314.0	29.5	1.7	22.7	52.2
Yugoslavia	34.8	12.0	14.1	8.7	272.0	23.3	1.4	17.9	41.2
SUB-TOTAL: Industry	174.9	59.7	71.3	43.9	1,311.3	116.7	7.0	90.6	207.3
D. Services[1]	59.1	24.3	23.8	11.0	131.1	29.1	2.1	31.7	60.8
GRAND TOTAL	234.0	84.0	95.1	54.9	1,442.4	145.8	9.1	122.3	268.1

[1] The service figures were obtained in the same way as in Table IX, with slight differences, in some service columns, in the percentage additions (rounding off).

TABLE XXII A: PRODUCTION PROGRAMME—*continued*

II. DETAILS, GROSS OUTPUT

£ million

Country—	*Bulgaria*	*Greece*	*Hungary*	*Poland*	*Rumania*	*Yugoslavia*	*Total*
Industry (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. MINERALS AND ELECTRICITY							
1. Mining	0.2	0.3	0.3	3.1	1.4	1.7	7.0
2. Electricity	0.3	0.3	0.1	0.9	0.6	0.6	2.8
Sub-Total	0.5	0.6	0.4	4.0	2.0	2.3	9.8
B. BUILDING AND CONSTRUCTION	3.0	3.0	3.0	24.0	15.0	12.0	60.0
C. MANUFACTURING							
1. Food, Drink, and Tobacco	1.4	1.0	1.4	8.4	6.7	6.4	25.3
2. Clothing and Bedding	0.6	0.6	0.7	4.2	2.4	2.3	10.8
3. Textiles	0.7	0.6	0.5	3.6	3.2	3.1	11.7
4. Leather, Fur, and Rubber	0.6	0.5	0.7	2.2	2.0	1.2	7.2
5. Chemicals (incl. Gas, Coke, and Petrol)	0.8	0.8	0.8	11.8	4.8	2.0	21.0
6. Paper, Stationery, and Printing	0.4	0.4	0.4	2.8	3.6	2.4	10.0
7. Furniture and Woodwork, Pottery and Glass, Misc.	0.8	0.8	0.8	4.0	3.0	2.1	11.5
8. Building Materials (incl. Timber)	1.0	0.9	0.7	7.0	4.8	4.0	18.4
9. Light Metal and Electrical Products	0.4	0.4	0.5	2.3	1.7	1.0	6.3
10. Semi-Manufactured Metals and Engineering	0.3	0.5	0.4	7.7	2.7	1.7	13.3
11. Metal Extraction and Refining	0.1	0.1	0.1	0.7	0.3	0.7	2.0
Sub-Total	7.1	6.6	7.0	54.7	35.2	26.9	137.5
TOTAL: Industry (A to C)	10.6	10.2	10.4	82.7	52.2	41.2	207.3
D. SERVICES							60.8
GRAND TOTAL (A to D)							268.1

TABLE XXII

PRODUCTION PROGRAMME, MODEL IV

AVERAGE ANNUAL ADDITION TO CAPITAL, POWER, AND THE FLOW OF MATERIALS AND OUTPUT

B. BY INDUSTRIES

I. SUMMARY

Industry	*Capital*				*Power Installed*	*Annual Flow of*			
						Materials Consumed			
	Total	*Land and Buildings*	*Plant and Machinery*	*Working Capital*		*Total*	*Of which Fuel & Electric Energy*	*Net Output*	*Gross Output*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	£ Million				000 H.P.	*£ Million*			
A. (1) Mining	22.4	8.1	10.8	3.5	108.0	1.6	0.5	5.4	7.0
(2) Electricity	13.8	4.4	8.7	0.7	460.0	0.6	0.4	2.2	2.8
B. Building and Construction	*34.0*	*12.0*	*10.0*	*12.0*	*40.0*	*30.0*	*1.0*	*30.0*	*60.0*
C. Manufacturing	104.7	35.2	41.8	27.7	703.3	84.5	5.1	53.0	137.5
SUB-TOTAL: Industry (A to C)	174.9	59.7	71.3	43.9	1,311.3	116.7	7.0	90.6	207.3
D. Services[1]	59.1	24.3	23.8	11.0	131.1	29.1	2.1	31.7	60.8
GRAND TOTAL	234.0	84.0	95.1	54.9	1,442.4	145.8	9.1	122.3	268.1

TABLE XXII B: PRODUCTION PROGRAMME—*continued*

II. DETAILS

Manufacturing

Industry	*Capital*				*Power Installed*	*Annual Flow of*			
						Materials Consumed			
	Total	*Land and Buildings*	*Plant and Machinery*	*Working Capital*		*Total*	*Of which Fuel & Electric Energy*	*Net Output*	*Gross Output*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Food, Drink, and Tobacco	14.9	4.6	5.7	4.6	80.5	18.4	0.6	6.9	25.3
2. Clothing and Bedding	7.2	3.3	1.0	2.9	18.0	6.5	0.2	4.3	10.8
3. Textiles	7.8	2.3	3.2	2.3	52.0	7.8	0.4	3.9	11.7
4. Leather, Fur, and Rubber	3.3	1.3	0.9	1.1	27.5	5.2	0.2	2.0	7.2
5. Chemicals (incl. Gas, Coke, and Petrol)	21.0	4.6	11.6	4.8	84.0	13.2	0.8	7.8	21.0
6. Paper, Stationery, and Printing	9.0	3.2	4.0	1.8	70.0	4.4	0.4	5.6	10.0
7. Furniture and Woodwork, Pottery and Glass, Miscellaneous	6.6	3.3	2.0	1.3	49.5	6.6	0.5	4.9	11.5
8. Building Materials (incl. Timber)	16.1	5.5	6.9	3.7	184.0	10.6	1.1	7.8	18.4
9. Light Metal and Electrical Products	4.5	1.5	1.5	1.5	30.0	3.6	0.2	2.7	6.3
10. Semi-Manufactured Metals and Engineering	13.3	5.4	4.5	3.4	95.0	6.8	0.6	6.5	13.3
11. Metal Extraction and Refining	1.0	0.2	0.5	0.3	12.8	1.4	0.1	0.6	2.0
TOTAL: Manufacturing	104.7	35.2	41.8	27.7	703.3	84.5	5.1	53.0	137.5

3. THE STRUCTURE OF DEMAND

Having obtained the final supply position, we now turn to the flow of demand in Model IV which we calculate on the same assumptions and in the same way as in Model II. In order not to overburden the text, we have given all Tables, except those for the final results, in an Appendix. Our procedure was to estimate first the Division of Net Output so as to obtain the total of wages and small salaries as well as of 'profits' paid out. Next come again the budgets of these two income groups which give us—after deducting personal savings—the Direct Demand on Current Account for the gross output of the various industries and for services. By adding the Derived Demand, which was computed as before, we arrive at the total Current Account.

The Demand on Capital Account—our next item—is the sum of the (unchanged) cost of the housing and public works programme and of the demand for new fixed and working capital needed in industry and services. The data are taken from the Production Programme.

Before we proceed, we may compare the capital requirements in our four models. The following Table XXIII shows the changes from one stage to the other. Leaving aside the transition from Model I to Model II, these changes are due to the shifts between and within Groups A and C. The capital cost of the housing and public works programme as well as the total capital employed in the building and construction

TABLE XXIII

CAPITAL REQUIREMENTS, INCLUSIVE OF LAND, BY STAGES

Capital Required (Round Figures)	*Model I*	*Model II*	*Model III*	*Model IV*
A. MINING AND ELECTRICITY				
£ million p.a.	54.0	38.0	68.0	36.2
£ per head	1,570	1,570	1,568	1,235
B. BUILDING AND CONSTRUCTION				
£ million p.a.	11.0	34.0	34.0	34.0
£ per head	170	170	170	170
C. MANUFACTURING				
£ million p.a.	144.6	99.8	92.6	104.7
£ per head	360	360	360	385
TOTAL INDUSTRY (A to C)				
£ million p.a.	210.5	171.8	194.6	174.9
£ per head	420	345	385	350
NEW SECTOR[1]				
£ million p.a.	—	338.0	368.0	342.0
£ per head	—	500	545	505

[1] Total Capital required for Industry (A to C), Services, Housing, and Public Works.

industry (Group B) are the same in all models, except in Model I. As to service capital, it will be remembered that we have always taken it as a constant *proportion* of the total capital required by industry (Groups A to C); but since the service sector shows the same composition and size in all models—again with the exception of Model I—we could have taken the capital requirements for services as absolutely fixed.[1] The only noticeable difference, however, would have been a slight reduction in our over-all figure for Model III.

To return to our main line of argument: having obtained the demand on Current and on Capital Account, both split-up by groups, we added them up after deducting from the former the allowances for replacement of buildings and plant; these allowances are unlikely to result in commensurate construction demand during the first five years. Our final results are summarised in the following Table which gives in cols. 2-4 the aggregate demand for the whole period, subdivided by groups. Note that the demand on Capital Account is almost half the demand on Current Account and roughly 40 per cent of gross output (= £4,020 million for five years). This reflects the great need for new private and social capital.

4. COMPARISON OF SUPPLY AND DEMAND

In the last three columns of Table XXIV the aggregate demand generated within the new sector during the first five years of industrialisation is compared with the corresponding gross output.[2] In this way we find the implications of our final model with respect to the balance of trade between our new sector and the 'outside' world which consists of the old sector in the region itself *and* of the countries outside the region. The surpluses of the various manufacturing industries represent the excess of their production over internal requirements (of the new sector), which is available for exports, while the deficits stand for import needs.

The detailed figures show what we have tried to indicate when we discussed the principles underlying the final labour distribution. First, no attempt has been made to cover from within the new sector more than 30 per cent of the engineering and machinery requirements of the first building-up period. This produces in Group 10 by far the largest deficit after that in Group E, Agriculture. (The latter group contains all unprocessed food-stuffs and agricultural raw materials;

[1] In other words, capital *per head* in services (Group D) was assumed to be equal, in all models, to capital per head in total industry so that changes in the capitalisation of industry produced corresponding changes in services. These changes in the service sector might have been eliminated.

[2] Table XXII B, col. 10, multiplied by 15.

TABLE XXIV

SUBDIVISION OF AGGREGATE DEMAND, SURPLUSES AND DEFICITS BY INDUSTRIAL GROUPS

(TOTAL, FIRST FIVE-YEAR PLAN, MODEL IV)

£ Million

I. SUMMARY

Products for Products of Groups	*Demand from*		*Aggregate Demand*	*Gross Output Produced*	*Surplus (+) or Deficit (—)* (5)—(4)
	Current Account	*Capital Account*			
(1)	(2)	(3)	(4)	(5)	(6)
A. Minerals and Electricity	309.75	27.75	337.50	147.00	— 190.50
B. Building and Construction	101.25[1]	798.75	900.00	900.00	—
C. Manufacturing	1,695.00	655.80	2,350.80	2,062.50	— 288.30
D. Services	978.75	—	978.75	912.00	— 66.75
E. Agriculture	476.25	32.70	508.95	—	— 508.95
F. Land	—	194.00	194.00	—	—
TOTAL, A to C	2,106.00	1,482.30	3,588.30	3,109.50	— 478.80
TOTAL, A to D	3,084.75	1,482.30	4,567.05	4,021.50	— 545.55
TOTAL, A to E	3,561.00	1,515,00	5,076.00	4,021.50	—1,054.50
TOTAL, A to F	3,561.00	1,709.00	5.270.00	—	—
II. DETAILS, MANUFACTURING					
1. Food, Drink, and Tobacco	281.25	12.00	293.25	379.50	+ 86.25
2. Clothing and Bedding	127.50	9.75	137.25	162.00	+ 24.75
3. Textiles	167.25	19.95	187.20	175.50	— 11.70
4. Leather, Fur, and Rubber	89.25	10.05	99.30	108.00	+ 8.70
5. Chemicals (incl. Gas, Coke, and Petrol)	241.50	29.55	271.05	315.00	+ 43.95
6. Paper, Stationery, and Printing	126.75	13.05	139.80	150.00	+ 10.20
7. Furniture and Woodwork, Pottery and Glass, Misc.	159.00	16.50	175.50	172.50	— 3.00
8. *Building Materials (incl. Timber)*	*217.50*	*45.30*	*262.80*	*276.00*	+ 13.20
9. Light Metal and Electrical Products	68.25	27.90	96.15	94.50	— 1.65
10. Semi-manufactured Metals and Engineering	191.25[2]	468.90	660.15	199.50	— 460.65
11. Metal Extraction Refining	25.50	2.85	28.35	30.00	+ 1.65
TOTAL	1,695.00	655.80	2,350.80	2,062.50	— 288.30

[1] Duplication due to sub-contracting. The discrepancy with the £100 million in Table V, p. 30, is due to rounding-off in that Table.

[2] Excludes replacement allowances in respect of plant and machinery: £102.75 million for five years (see Table 8, Appendix D).

as we have treated industry and services in isolation, the whole of the demand for these products becomes a deficit.) The remaining large deficit is that in minerals, which is inevitable in view of the shortage of coal and iron ore in the greater part of the region. All the remaining

deficits are of a smaller order of magnitude. The largest of them is in services; it would probably go mostly to transport (such as shipping) and finance (including insurance).[1] The only other deficit of any size is in textiles (semi-finished products), where other countries, including some in the neighbourhood of our region, as-well as the old sector within the region, already possess such a productive capacity that it is obvious that at least limited use should be made of it in the first five-year period. The surpluses have been concentrated in industries where the region has a definite advantage (notably processed food), and in those which can supply the agricultural sector in return for some of the 'imports' from it (clothing and chemicals). Building material production obviously had to cover practically the entire regional demand, and the result was a surplus on account of timber, part of which will be available for exports to foreign countries.

The net result, for five years, is a deficit of just over £1,000 million (an average of £200 per annum), if we exclude the demand for land; somewhat less than half of the deficit consists of capital goods, and the remainder of consumption goods, semi-finished products, and especially raw materials. This deficit—the excess of aggregate demand over gross output—represents Imports on Loan Account: item 19 of our scheme of the circular flow (p. 42). Its equivalent in that scheme is item 15: Outside Loans, i.e. loans from the old sector and/or from foreign countries.

5. THE CIRCULAR FLOW

Our deficit originates from a shortage of internal savings which do not cover the whole demand on Capital Account. They are therefore supplemented by outside loans to fill the gap. In other words: the sum of internal savings and outside loans is equal—or should be equal—to demand on Capital Account, as is clearly brought out in our scheme of the circular flow. The figures at which we arrive in our Tables do not bear out this equality. The internal funds available within the new sector for new investments add up for five years to almost exactly £500 million; as the Tables in Appendix D show, these funds consist of:

Personal Savings (Tables 2 and 3)	£87.75 million.
Corporate Savings (Table 1)	£112.5 million.
Government Investment out of Corp. Taxation (footnote, p. 41)	£18.0 million.
Replacement Allowances (Table 8)	£282.0 million.
TOTAL INTERNAL CAPITAL SUPPLY	£500.25 million.

[1] The size of this deficit demonstrates the difficulty of cutting-down services beyond a certain minimum, unless the population's demand for them is prevented from becoming effective.

We have included the replacement allowances because we have assumed that there is no actual replacement demand during the first five years. The amounts set aside for this purpose are, therefore, available for new investment. If the internal capital supply of the new sector is added to outside loans, i.e. to our deficit of £1,054 million, we obtain a total which exceeds the demand on Capital Account by about £40 million for five years. Capital requirements, it will be remembered, have been calculated as only £1,515 million, exclusive of land.[1]

The discrepancy is due to the cumulative effect of rounding off,[2] starting with the Division of Net Output. In order to eliminate these discrepancies and to give at the same time a picture of the process of the whole, we shall reproduce our scheme of the circular flow, fitting-in the corrected (final) figures. In order to do so, we have to present the circular flow in a slightly different form. In our diagram on p. 42 the replacement allowances are contained in the demand on Current Account (item 16), while in the later calculations they have been deducted on the ground that replacement demand is likely to be negligible in our plan period. To indicate this change in assumptions, which does not affect consistency, our revised diagram contains in dotted lines the new item (13b): Replacement Allowances, which in accordance with the procedure in the text are substracted from demand on Current Account or, more precisely, from Derived Demand (item 13); they now accrue to Internal Savings.

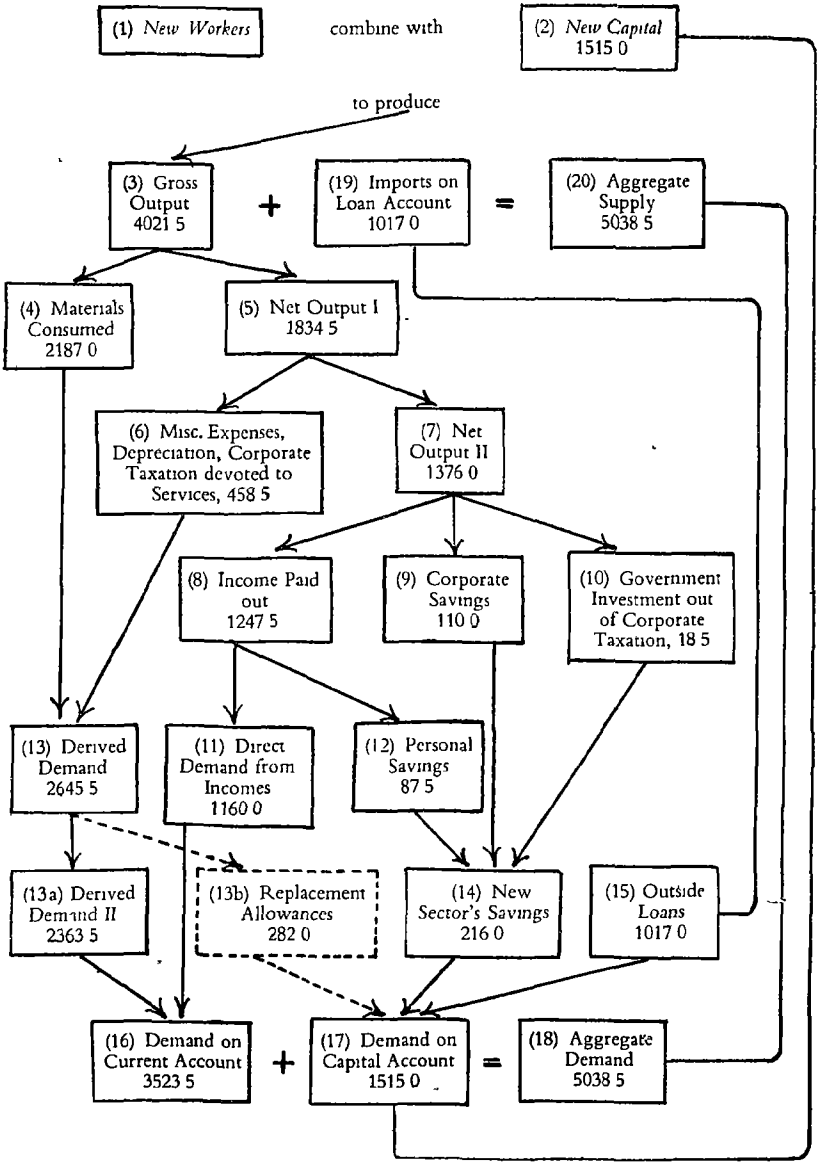
The figures in the diagram are corrected as explained in Appendix E. The internal capital supply—the sum of items 13a and 14—amounts after revision to £498 million, outside loans to £1,017 million. The scheme now shows balance; the excess of aggregate demand (or supply) over gross output equals the excess of demand on Capital Account over nternal savings (including depreciation).

[1] Allowing for land, capital requirements work out at £1,710 million. But the cost of land (£195 million) is a mere transfer payment that need not be covered from new savings. If we include it in demand on Capital Account, we would also have to include it in the internal *supply* of capital. Hence the financing of the scheme is not affected.

[2] Moreover, depreciation allowances have been taken in one set of our calculations as a global percentage of net output, while for the purpose of estimating derived demand they have been split up into different parts to be calculated separately; slight differences in the first decimals of our annual figures resulted from this procedure. It is to be remembered that every difference of £1 million in our annual figures produces a discrepancy of £15 million in the five-year totals. For further details regarding these discrepancies see Appendix E.

CIRCULAR FLOW, FIRST FIVE-YEAR PERIOD

(All figures in million £)



CHAPTER V

RESULTS, IMPLICATIONS AND CONCLUSIONS

WE shall now sum up and discuss our main results, but before we do so we may define or recall once more the scope of this study. It is limited in various respects. First, while tracing the *effects* of industrialisation on the structure of employment, output and demand, we have more or less ignored the *methods* of carrying out any declared policy. The latter subject was discussed briefly in Part A of this book. But the subsequent investigation was concerned primarily with assessing the changes in the economic structure which an agreed policy of industrialisation would have to bring about—by whatever means. Secondly, we have deliberately restricted the analysis to the short period of five years. Almost all co-efficients such as labour productivity, the rate of savings, etc., are bound to undergo changes in the longer run. The order of magnitude of these changes is hardly predictable. By confining ourselves to a short period, we could take these mutable factors as constant and could thus avoid making doubtful estimates as to what would happen in the course of time. Thirdly, we have neglected all developments in agriculture which enter the analysis only indirectly.[1] Our intention was to isolate the process of industrial expansion. Obviously, this procedure would have been impossible had we aimed at giving a full realistic picture of the possible economic development of our region.

Finally, no specific assumptions have been made regarding the degree of political integration of the area with which we are concerned. Our Five-Year Plan does not, for instance, demand or presuppose a Federation of the 'Balkan' States. Certain development projects may require supra-national arrangements, e.g. in the field of power production or transport. But otherwise all we have assumed is parallel action of the various countries to absorb part of their local (national) labour reserves. This implies that tariff questions, exchange rates, and similar problems that will arise within the region, will be settled by agreements to meet the requirements of expansion. The relations with the *outside* world will come under review—if only briefly—in the final section.

1. THE NEW OCCUPATIONAL AND INDUSTRIAL STRUCTURE

The occupied population of S.E. Europe was about 42 million before the war; 29 million (in a round figure), or roughly 70 per cent, were

[1] In a very rough fashion we shall allow later on for investment in agriculture. See p. 85.

occupied in agriculture, the remainder in mining, industry, and services.

Our Five-Year Plan aimed at absorbing each year 675,000 'workers' into a new industrial sector; 275,000 would be withdrawn from the land, the rest represents the natural growth in the employable population. Disregarding all consequences of the war—a procedure which, for lack of information, we had to adopt throughout this study—the occupational structure would change during the five-year period as follows:

TABLE XXV

DISTRIBUTION OF OCCUPIED POPULATION

(ROUND FIGURES)

S.E. Europe	*Total*	*In Agriculture*		*Outside Agriculture*	
	million	*million*	*Per cent of total*	*million*	*Per cent of total*
Before Five-Year Plan	42	29.0	70	13.0	30
After Five-Year Plan	44	27.6	63	16.4	37

The new industrial sector has been described in Model IV. It shows a very diversified structure consisting of consumers' goods and capital goods industries, or—if a different classification is applied—of labour intensive and capital intensive trades. Building and construction work absorbs a high proportion of the planned intake. Our final labour allocation admittedly does not follow as rigidly from our assumptions as the allocations in the previous stages or models. A certain degree of arbitrariness is inherent in advance planning. For there are always many routes which an industrial policy can take in given conditions, even when resources and short-run costs are known.

Perhaps the best way of bringing into relief the essential features of our final output and employment programme is to confront it with the existing (i.e. pre-war) structure of industry. We do so in the following Table XXVI, which, for lack of comparable data, is restricted to Hungary, Poland, and Rumania. The figures referring to the future are, of course, not forecasts, but tentative targets.

We have left out mining and building which in the present context are less relevant than the factory trades. But the expansion in building activity is reflected in the high share of the building material industries in the labour inflow and in aggregate employment (compared with the pre-war situation). The food industries, among others, also

TABLE XXVI

STRUCTURE OF MANUFACTURING INDUSTRY BEFORE AND AFTER PLAN[1]

(According to Employment)

	Manufacturing Industries (Group C)							*Numbers in thousands (Total = 100 %)*
	Food	*Clothing and Textiles*	*Leather*	*Paper and Printing*	*Building Materials*[2]	*Chemicals*	*Founding and Metals*[3]	
HUNGARY	%	%	%	%	%	%	%	
Per cent Distribution of								
Labour Inflow, 1929–37	1.5	49.7	6.8	0.9	3.9	10.5	26.7	62.2
Planned Inflow	9.5	25.6	7.3	5.8	28.5	5.8	17.5	68.5
Labour Force, 1937	14.3	27.3	3.7	4.6	14.6	6.1	29.4	327.0
Labour Force after 5 years	13.5	27.0	4.3	4.9	17.0	6.0	27.3	395.5
RUMANIA								
Per cent Distribution of	6.4	28.2	3.1	4.5	28.3	11.0	18.5	70.7
Labour Inflow, 1934–37	8.8	21.9	4.5	10.4	30.0	7.0	17.4	345.0
Planned Inflow	12.4	25.2	4.3	5.3	24.4	0.9	18.5	279.0
Labour Force, 1937	10.4	23.4	4.4	8.1	27.5	8.3	17.9	624.0
Labour Force after 5 years								
POLAND[4]								
Per cent Distribution of								
Planned Inflow	7.1	20.5	3.1	5.2	27.0	11.0	26.1	537.0
Labour Force, 1937	9.6	26.4	1.0	4.3	18.8	7.2	32.7	622.0
Labour Force after 5 years	8.4	23.7	2.0	4.7	22.7	8.9	29.6	1159.0

[1] The figures of pre-war employment and inflow refer to establishments employing 10 workers or more.
[2] Including our groups 7 and 8 (Woodwork, Pottery, Glass, Timber, etc.).
[3] Including our groups 9 to 11.
[4] There was no significant labour inflow into Polish industry before the war, apart from the merely cyclical re-expansion.

participate more than during the 'thirties in the labour intake, but their ultimate share in total employment is somewhat smaller than it was before the outbreak of war. The textile and metal industries show a certain decline in their relative importance.

It is to be noted that the weight of the various industrial groups would be different if we measured it by their contribution to total net output; the chemical industries, for instance, would then rank very much higher.[1] But the relative changes *over time* would be similar to the picture given in Table XXVI.

2. THE PLANNED INCREASE IN THE NATIONAL INCOME

How would the prospective or planned national income of our region compare with the combined pre-war income of the constituent countries which, before the war, was of the order of £1,400 million? As a consequence of industrialisation there will be a two-fold increase in income. First, the expansion of employment in the new sector will produce each year an addition to income of £122 million.[2] Secondly, there will be a certain rise in productivity per worker in the old sector which will benefit from the improvement in communications, power supply, etc. (external economies). Assuming that this rise will amount to 1-2½ per cent p.a., we arrive at the following estimate of the combined real national income of the area during and after the five-year period.

TABLE XXVII

THE PLANNED INCREASE IN THE NATIONAL INCOME OF S.E. EUROPE

(All figures in £ million)

Countries (pre-war frontiers)	*Pre-war National Income*[1]	*Average annual addition*		*National Income at the end of Five Years*[2]	*Average annual Income during Five Years*[2]
		Old sector	*New sector*		
1	2	3	4	5	6
Bulgaria	75	1.3	6.1	110.0	95.0
Greece	100	1.8	6.1	140.0	125.0
Hungary	155	2.8	6.1	100.0	180.0
Poland	675	12.1	49.3	980.0	860.0
Rumania	220	4.0	30.6	395.0	325.0
Yugoslavia	175	3.2	24.1	310.0	255.0
Total	1,400	25.2	122.3	2,135.0	1,840.0

[1] Exclusive of indirect taxation. [2] Rounded off to the nearest 5 million.

[1] Cf. the remarks on the labour distribution and the addition to output in Model IV, p. 68.
[2] See col. 9, Table XXII (Production Programme).

The average annual increase in the national income during this period would thus amount to almost 8 per cent, as against about 2 per cent during the 'thirties; at the end of the period aggregate income would be 50 per cent (and *per capita* income 45 per cent) higher than before. Even this estimate is probably still too low.[1] External economies and more intensive utilisation of existing capacities may well result in a more significant rise in the income of the old sector than is shown in column 3 of our Table. As to the new sector, we would have obtained a higher average annual addition, had we taken a longer plan period (while maintaining our assumptions regarding the intake of labour and the kind of equipment used). For net output per worker should exceed in the long run our standard figure by a considerable margin; it will be remembered that labour productivity was estimated to be relatively low in the short run. Finally, no allowance has been made for the gains accruing from any additional investment in agriculture.

Even if we take the figures, as they stand in Table XXVII, it is plain that the rate of progress, which they show, would reach and surpass the rate of growth experienced in the leading industrial countries during the nineteenth century. It is well to keep in mind that we have boldly assumed that the political and social organisation will permit of such a programme.

3. CAPITAL REQUIREMENTS AND INTERNAL SAVINGS

Rich countries suffering from unemployment need not create new capacities, if they want to provide additional work. In economically backward areas, however, increased (productive) employment is conditioned by an expansion in factory equipment and in such basic services as transport and housing. High capital outlay is, therefore, unavoidable, particularly during the early stages of industrial progress. In our case, capital requirements exclusive of land have been estimated at just over £1,500 million, equal to about £450 per newly employed worker. Had we followed the process over a longer period of, say, 20 to 30 years, we might have arrived at a lower estimate of capital per head (always assuming an even intake of new industrial personnel).

[1] Except for one consideration: in col. (4) of the present Table we added to the pre-war income the net output produced in the new sector. To be quite consistent, we would have to deduct from this net output the duplication contained in it (16 per cent). But since we relate our net output figure to national income statistics, which in any case contain a wide margin of error (and probably similar duplication), we did not make this correction. It would have reduced the computed national income (after five years) to just over £2,000 million.

For the proportion of construction work in total output can be diminished gradually as expansion proceeds and the main basic services are completed.

Our planned capital outlay for five years is made up in round figures as follows (see Table 7, Appendix D):

Land - - - -	£195 million.
Buildings and Construction -	£765 million.
Plant and Machinery - -	£475 million.
Working Capital - -	£275 million.
TOTAL including Land -	£1,710 million.
TOTAL excluding Land -	£1,515 million.

How are these requirements met in our scheme? There are two aspects of this question. First, one may ask where the capital goods are actually produced. The answer is contained in our Production Programme which shows that a fairly large proportion is produced by the new workers, i.e. within the new sector itself. Home production (of the new sector) covers in particular the whole demand on capital account for finished buildings—£765 million—and for stocks of building materials—£45 million.[1] These two items alone account for more than 50 per cent of total capital requirements.

The question where the actual capital goods are produced is quite distinct from the other question which concerns the origin (home or abroad) of the savings required to finance expansion. We dealt with this question when we confronted the Demand on Capital Account with the internal savings of the new sector (p. 76/7). It emerged that only one-third of the planned capital outlay is financed from internal sources, i.e. from the net savings of the new sector and from replacement allowances.[2] The proportion of total new investment that is 'home' financed is therefore much smaller than the contribution of the new sector to the actual supply of investment goods. The reason for this phenomenon is that we have allocated a fairly large part of the new labour force to constructional work. Given the deficiency in internal savings, this was only possible by incurring a certain deficit in consumers' goods which had to be covered—along with the deficit in equipment and materials—by imports on loan account. Had we allocated a smaller proportion of the new labour force to capital construction (keeping the total labour intake and the distribution of income

[1] See Table XXIV, col. 3, line 8.

[2] The internal capital supply could be increased by raising the rate of net savings. In the present scheme net savings are equivalent to 12 per cent of the net output of the new sector. An increase to, say, 20 per cent would not be excessive, considering that this rate would only apply to the *increment* in income derived from industrialisation. Even on this assumption, however, the internal capital supply of the new sector (including replacement allowances) would only cover 43 per cent of the planned expenditure on capital construction.

constant), the need for loans would have been the same, but a larger part of these outside savings would have been imported in the form of materials and machinery.

4. LOANS FROM FOREIGN COUNTRIES

Our loans cover all net investment of outside funds whether these represent savings of the old sector or of foreign countries. From the point of view of the circular flow this is irrelevant. But the origin of the loans is important from another point of view. In the case of borrowing from other countries the surplus out of which dividends and interest are paid must take the form of a foreign exchange surplus. The problem of the Balance of Payments enters here into the picture, but before we can discuss it, we must subdivide Total Loans into those from within and those from outside the region. Total loan requirements for five years—item 15 of the Circular Flow—amounted in our final calculation to £1,017 million or, to give a round figure, £1,000 million, of which part will be covered by the savings of the old sector. These varied before the war between $3\frac{1}{2}$ and 6 per cent of the national income of the constituent countries, averaging in 1937 slightly more than 4 per cent of their combined income (about £60 million savings). The rate of savings was highest in Hungary which had the most active investment policy. Let us assume that under conditions of a similarly active policy the region's capital formation will approach in the old sector the pre-war Hungarian level without reaching it fully. Our estimate in Table XXVII shows for this sector an average annual income during the five years of expansion of £1,475 million[1] which gives us (at a rate of saving of 5 per cent) rather more than £70 million p.a., or, for the whole plan period, between £350-370 million.

Not all these 'old' savings will be available for investment in the new sector, i.e. in industry; part of them will flow into agriculture. So far we paid no attention to this field, nor do we intend to investigate it now. But let us say, for the sake of argument, that almost one-third of the capital formed in the old sector will be devoted to agricultural improvements, leaving for investment in industry £250 million (in addition to the capital accumulating in the new sector).[2] On the basis

[1] This is the income of the old sector in the third year of expansion, the average annual addition to income during the Plan-period being £25 million (see Table XXVII, col. 3).

[2] Direct investment in agriculture would therefore absorb in five years £100-120 million, equal to between 6–8 per cent of the overall capital investment in the new sector. The latter includes many projects which are directly related to agricultural improvements (better communications, electricity supply, irrigation, etc.). Only additions to the capital stock of agriculture would have to be financed out of these £100–120 million. This would greatly exceed the pre-war investment in agriculture which absorbed on the average less than 2 per cent of total investment.

of this very conjectural figure loans from foreign countries would have to contribute £750 million in five years (Table XXVIII).

TABLE XXVIII

SOURCES OF CAPITAL SUPPLY FOR INVESTMENT IN NEW SECTOR

FIRST FIVE-YEAR PERIOD

	£ *million*	£ *million*
Savings of New Sector (including Replacement Allowances)	500	
Excess of Savings of Old Sector over Investment in Agriculture	250	
Total Regional Capital Supply for Industry - -		750
Loans from Outside the Region - - -		750
Aggregate Capital Supply for Industry - -		1,500

5. FOREIGN TRADE

How will this capital inflow affect the external balance of the region, i.e. its economic relations with the outside world? The methods which we have tried to evolve for analysing the process of industrialisation cannot be applied easily to foreign trade problems. The following short remarks therefore intend no more than to indicate in a very general way the changes in the foreign exchange position brought about by the Plan.[1] Again we must make certain simplifying assumptions. We take it that there will be some pooling arrangement between the countries of S.E. Europe by which they will share in an agreed way both in the capital inflow and in transfer risks (pooling of extra-regional exchange). We further assume that the period of expansion—or at least of the capital inflow—will come to an end after five years when interest and amortisation payments on the foreign development loans (£750 million) fall due. Let these debt charges be at a rate of 4 per cent, involving an annual transfer of £30 million. How could this commitment be met?

During the period between the last economic crisis and the outbreak of war, when the inflow of foreign capital into S.E. Europe had stopped, most countries of the region had a small surplus on current account in their balance of payments. According to official sources, the position before the war may be estimated as follows (Table XXIX):

[1] Unpublished material prepared by Mr. T. Lychowski for a seminar of the Royal Institute of Intern. Affairs was drawn upon in setting up the following Tables.

TABLE XXIX

BALANCES OF PAYMENTS ON CURRENT ACCOUNT OF THE COUNTRIES OF S.E. EUROPE

AVERAGE 1935 AND 1936 IN MILLION £

Countries	*Credit (+) or Debit (—) Balances*			
	Goods	*Services*	*Interest and Dividends*	*Current Account Total*
1	2	3	4	5
Poland - - -	+ 1.7	+ 5.3	— 5.2	+ 1.8
Hungary - - -	+ 3.5	+ 0.8	— 1.6	+ 2.8
Jugoslavia - - -	+ 1.4	+ 3.0	— 4.7	— 0.3
Bulgaria - - -	+ 2.5	+ 0.1	— 0.6	+ 1.9
Greece - - -	— 9.5	+ 4.9	+ 0.1	— 4.5
Rumania[1] - - -	+ 4.2	+ 1.4	— 3.8	+ 1.8
Total	+ 3.8	+ 15.5	—15.8	+ 3.5

[1] Estimated. No official Balance of Payments figures were published after 1930.

No reliable data are available to show the balance of payments of the region as the whole, i.e. the surplus or deficit resulting from its economic transactions with the *outside* world. But from what estimates can be made, it appears that this 'external' balance—which alone is relevant in our present context—was more or less in equilibrium before the war. A small surplus from visible trade together with a relatively large service balance (mainly remittances) seems to have been just sufficient to cover interest and dividend payments. These payments on account of old external debts presumably will have to be continued, but in addition there will be an annual expenditure of £30 million to service the new development loans. The region, therefore, will have to achieve a current account surplus of that order.

An increase in the service balance is hardly to be expected. The most important single item on the credit side of the invisible trade consisted before the war of emigrants' remittances. In the absence of large scale new emigration the service balance is likely to shrink, because with rising domestic output expenditure on certain services bought from abroad may increase relative to receipts. The foreign exchange surplus required to meet the new debt burden may therefore have to come from visible trade.

Receipts from commodity exports to the outside world exceeded before the war the expenditure on imports by an insignificant margin, as is shown in Table XXX.

TABLE XXX

FOREIGN TRADE OF S.E. EUROPE[1]

AVERAGES IN £ MILLION FOR 1937 AND 1938

Countries	*Imports*		*Exports*	
	from the region	*from outside*	*to the region*	*to outside world*
1	2	3	4	5
Poland - - -	2.0	47.0	1.6	44.0
Hungary - - -	4.7	21.8	3.1	30.2
Rumania - - -	2.1	26.9	5.6	33.7
Jugoslavia - - -	1.8	22.2	2.3	24.3
Bulgaria - - -	1.4	11.4	1.0	12.7
Greece - - -	4.9	22.5	1.6	16.5
Total	16.9	151.8	15.2	161.4

[1] Taken from *Foreign Commerce Yearbook*, 1939, U.S. Department of Commerce, Washington, 1942, and converted from U.S. Dollar in £st. at the rate of $4.95 for 1937 and $4.89 for 1938.

The transfer of additional interest and dividends (£30 million) after the investment period will necessitate an expansion in 'outside' exports by about 20 per cent, other things being equal. But, of course, there will be changes in the foreign trade balance quite apart from this new commitment. There is one particular development which bears directly on our problem.

Industrialisation will lead to an increase in (the demand for) imports which, quite apart from imports on Loan Account, will rise in some proportion to the rise in national income. Before the war the ratio of total imports to the combined national income of the constituent countries was about 12 per cent, while imports from outside the region were equivalent to between 10 and 11 per cent of the national income. After the period of development the dependence of the area on foreign trade may be somewhat smaller. A falling import ratio is a very common phenomenon to be observed in all developing countries. In our case the very marked shift towards the building industry, which does not claim many foreign materials, as well as the increased share of services in the national income, will operate in this direction. But the relative decline in imports can hardly be very significant. For the share of foreign goods in total supplies is already so low in S.E. Europe (because of highly protectionist policies in the past) that even at the higher level of domestic output this share is not likely to be capable of an appreciable further reduction.[1]

[1] This applies to some countries, like Poland, more than to others. In the longer run the industries producing equipment have more scope for possible competition with imports than

Let us assume, then, that the post-Plan ratio of total imports to national income will be between 10 to 12 per cent (say 11 per cent) and that the share of intra-regional in total imports will remain constant in this short five-year period. The demand for imports associated with the rise in national income would then be as follows:

TABLE XXXI

ESTIMATED ANNUAL DEMAND FOR IMPORTS AT RISING INCOME LEVELS

(Round Figures)

S.E. Europe	*National Income £ million*	*Total Imports*		*Imports from Outside the Region*	
		£ million	*% of National Income*	*£ million*	*% of National Income*
Before Expansion	1,400	170	12	152	11
After Expansion	2,135	235	11	210	10

This absolute increase in the demand for imports can only be met if exports expand correspondingly. Since, in addition, the new debt service must be covered (by an export surplus), total sales to the outside world would have to fetch about £240 million instead of £160 million before the war (an increase of 50 per cent). Failing this the countries of S.E. Europe would have to resort to a more restrictive import policy. Our Production Programme provides for additional exports by aiming at a surplus (relative to domestic requirements) particularly in processed foods, in timber, and chemicals.[1]

We have not attempted to make similar estimates for the subsequent plan periods. If industrialisation continues along the lines which we have indicated, there will be need for more foreign loans and hence further additions to the interest burden. But their order of magnitude might change considerably from one period to the other. It is certain that the intake of new workers will be associated with rising net output per head, hence with rising incomes and with a higher rate of savings; in consequence the proportion of home financed in total investment should increase as the industrial development advances. But there is one offsetting factor. As replacement demand makes itself felt in the later stages, the allowances set aside for this purpose will not

most consumers goods industries. Before the war imports of machinery and means of transport were only about 15 per cent of requirements (=home production of machinery plus imports) in Hungary, but 50 per cent in Poland and between 70 to 85 per cent in the other countries. About 95 per cent of these imports, taken together, came from outside the region.

[1] See the surpluses in col. 6 of Table XXIV. It will be remembered that the surpluses of some industries were arranged specifically for the purpose of making available goods for export to the outer world (while other surpluses were earmarked for the old sector).

be available any more for the finance of new investment. To that extent the internal capital supply will be reduced. Whether current imports will continue to decline relative to income, will depend on circumstances which we do not venture to assess here. But with the building-up of the area, there should be some intensification of the intra-regional trade,[1] which so far has been very undeveloped. To the extent that the constituent countries can cover a somewhat larger proportion of their rising import requirements from regional sources, more foreign exchange will be available to balance the accounts with the outside world.

To investigate future opportunities for mutual trade within the region is outside the scope of this study. Nor shall we explore the actual prospects of additional exports from the region to foreign countries; they depend largely on world conditions. It may be more useful to examine critically the main assumptions on which our foreign trade estimates—as well as most others—rest.

6. ALTERNATIVE ASSUMPTIONS

The strain on the foreign balance is a consequence of the high capital and loan requirements of our Plan. The estimates of these requirements have been derived from a set of assumptions which we have regarded as sufficiently plausible to justify our calculations. But it would have been possible, without doubt, to take different starting points here or there.

Consider first the capital requirements, net of land, which amount in our scheme to £450 per newly employed worker. This figure is very high compared with other estimates. P. N. Rosenstein-Rodan, for instance, mentions tentatively a figure of £300 to 350 per head as needed for the industrialisation of S.E. Europe;[2] the Bombay Plan for India, to give another example, is based on a capital outlay of between £110 to 115 per industrial worker.[3] But industrialisation in our model is conceived as a process which leads and is directed to the establishment and expansion of modern, mainly large-scale, industry. Backward areas—we argued—usually employ advanced technique and knowledge, once they start on intensive economic development. The lower estimates mentioned above put more emphasis on light manu-

[1] See the argument on p. 17 (and footnote).

[2] Cf. 'Problems of Industrialisation of E. and S.E. Europe,' *Economic Journal*, June to September, 1943.

[3] Cf. *A Plan of Economic Development for India* (Parts One and Two), Penguin Books, 1945, p. 74. A similar estimate for the Middle East arrives at a figure of about £225 per new industrial earner; cf. A. Bonné, *The Economic Development of the Middle East*, pp. 88 and 111.

facturing and on the reorganisation of handicrafts and rural industries. This admittedly is a possible approach, given the shortage of capital. Had we allocated in our final model more workers to light industries and, more particularly, had we reduced the level of equipment in all industries, we would have obtained a lower figure both for capital outlay and for net output (or income) per newly employed person. A certain revision of our Plan along these lines might be advisable. But a preferable alternative would be to introduce double or multiple shift working in as many industries as possible. Since the same equipment would then serve a larger number of workers, capital requirements per head would be reduced without a corresponding loss of productivity.

There is another set of assumptions and calculations which could be altered: namely those relating to savings. It will be remembered that the sum of personal savings, corporate savings, and Government investment out of corporate taxation is equivalent in our scheme to about 12 per cent of the increment in output; by adding the capital formed in the old sector (at a rate of 5 per cent), we obtained the total net savings for the region as a whole, about £115 million as an annual average. The over-all rate of savings on this basis is just over 6 per cent of the estimated national income during the Plan period. For the sake both of rapid industrialisation and of reducing the dependence on foreign loans, a higher rate of internal capital accumulation might be aimed at and achieved. In fact a rate of, say, 8 per cent may well be within the realm of practical politics, even during the initial period. Combined with a certain reduction in capital per head, this would lessen considerably the need for foreign credits.

It would be possible, therefore, to construct alternative models, each of them showing the quantitative relationships which exist, under different assumptions, both between the various industries and between the productive sectors of the industrialising economy and the final demand. Such models are valuable tools in the formation of policy. If it is intended to speed up and assure the simultaneous growth of different industries in backward areas, the State must play an important rôle. Models such as ours—which, in fact, represent an attempt at budgeting for expansion—will assist the State by indicating the requirements of a rational development and by permitting an appraisal of alternative policies in quantitative terms.

APPENDIX A

Distribution of Persons Occupied in Industry, Austria and Czechoslovakia, 1930

Industry	*Austria* 000'	*Czechoslovakia* 000'	*Total* 000'	*Total* *Per Cent*
(1)	(2)	(3)	(4)	(5)
A. Minerals and Electricity				
1. Mining	21.0	166.9	187.8	5.9
2. Electricity[1]	8.1	16.6	24.7	0.8
Sub-Total	29.1	183.5	212.5	6.7
B. Building and Construction	123.2	297.3	420.5	13.1
C. Manufacturing				
1. Food, Drink, and Tobacco	109.6	238.1	347.7	10.9
2. Clothing and Bedding	153.4	284.3	437.7	13.7
3. Textiles	77.1	360.1	437.2	13.6
4. Leather, Fur, and Rubber	14.0[2]	27.0	41.0	1.3
5. Chemicals	27.3[2]	48.1	75.5	2.4
6. Paper, Stationery, and Printing	55.0	72.1	127.0	4.0
7. Furniture and Woodwork, Pottery and Glass, Misc.	68.2[3]	258.6[3]	326.8[3]	10.2[3]
8. Building Materials (incl. Timber)	65.8[3]	124.8[3]	190.6[3]	5.9[3]
9. Light Metal and Electrical Products	168.2[4]	398.0	582.3	18.2 6.1[3]
10. Semi-Manufactured Metals and Engineering				9.2[3]
11. Metal Extraction and Refining	16.0			2.9[3]
Sub-Total	754.6	1,811.1	2,565.8	80.2
Total Industry (A to C)	906.9	2,291.9	3,198.8	100.0
D. Services	523.8	785.1	1,308.9	(40.9)
Grand Total (A to D)	1,430.7	3,077.0	4,507.7	(140.0)

[1] Includes Water-works.
[2] Austria: Rubber included with Chemicals instead of with Leather.
[3] Estimated distribution between our industrial groups.
[4] Of which Electrical Products, 22.0.

APPENDIX B

Capital, Power, Materials, and Output per head, in Five Countries

THE following Tables, which form the basis for Table VIII, show the way by which we arrived at our 'Standard Figures.' The original data raise various difficulties which impair their comparability, although we have tried to make the figures as comparable as possible. For this purpose we have reduced them to a standard classification of industries,[1] calculated them per occupied person (including salary-earners and, as far as possible, working proprietors), and converted all values into sterling at the exchange-rate current in the respective years. The last point was complicated, especially in the case of the Balkan countries, by the existence of official rates which varied widely from those which would have obtained in a free market, and from purchasing-power parity. As the Rumanian Leu was devalued only a few years before the period to which our figures refer, we have contented ourselves with the official rate; but for the Hungarian Pengö we had to use a rate equal to two-thirds of the official one.

There still remain various difficulties, especially of definition. The following are the terms or definitions used in the official sources:

CAPITAL

Rumania—Capital Invested (total nominal capital of industrial enterprises).

Hungary—Capital Invested.

Canada—Capital Employed.

(Includes land, buildings, fixtures, machinery, tools, and other equipment; inventory value of raw materials and finished products on hand, stocks in process, fuel, supplies, etc.; cash, bills, and accounts receivable, prepaid expenses, etc.)

Australia—Value of land and buildings, plant and machinery at June 30, 1937, including estimated value of rented premises and machinery.

Palestine—Capital (includes land and buildings; inventory, machinery, etc.; materials, stocks, cash, and accounts). *The last two items have been eliminated from the present Tables.* Rented premises and plant are *excluded* from the original data. (December, 1936.)

[1] This proved difficult with the Palestinian figures.

POWER

Rumania—Motive Power.
Hungary—Prime Movers ('machines motrices') *plus* Electric Motors.
Canada—Power Installed.
Australia—Rated horsepower of engines ordinarily in use, except for Generating Stations, where the figures refer to rated horse-power of total engines installed.
Palestine—Prime movers and electric motors driven by purchased electric energy, H.P. actually used.

MATERIALS CONSUMED

Rumania—Value of Raw Materials *plus* Fuel.
Hungary—Value of Raw Materials and Packing Articles Used, *plus* Value of Fuel and Lighting Materials Used.
Canada—Cost of Materials, *plus* Cost of Fuel and Electricity.
Australia—Costs of Production. (Included containers, packing, etc.; tools replaced and repairs to plant; all other materials used; *and* power, fuel, light, lubricants, and water.)
Palestine—Cost of Materials; Fuel and Electric Energy; and Contract Work.

NET OUTPUT

Gross Output *minus* Materials Consumed.

GROSS OUTPUT

Rumania—Value of Production.
Hungary—Value of Industrial Articles Produced.
Canada—Value of Products.
Australia—Value of Output.
Palestine—Value of Products.

TABLE 1

CAPITAL PER OCCUPIED PERSON IN MANUFACTURING INDUSTRY

£ sterling

Industry	*Rumania* 1937 £1= 670.60 *lei*	*Hungary* 1937 £1= 22.30 *pengös*(*a*)	*Canada* 1936 £1= $4.97	*Australia* 1936–37 (*h*) £1 *stg.* = £A. 1.25			*Palestine* 1936 (*i*) £1 *stg.*= £P. 1			
(1)	(2)	(3)	(4)	*Total* (5)	*Land and Buildings* (6)	*Plant and Machry.* (7)	*Total* (8)	*Land and Buildgs.* (9)	*Plant and Machny.* (10)	*Workg. Cap.* (*j*) (11)
1. Food, Drink, and Tobacco	461	403	1,118	624	312	312	395	129	139	127
2. Clothing and Bedding	73	45	361	132	98	34	118	1*k*	30	87
3. Textiles	163	137	813	252	113	139	269	69	108	92
4. Leather, Fur, and Rubber	116	100	942	280	174	106	148	32	50	66
5. Chemicals	608	373	2,084	886	321	565	679	168	339	172
6. Paper, Stationery, and Printing	288	173	1,871	374	208	166	187	27	125	35
7. Furniture, Woodwork, Pottery, and Glass, Miscellaneous	123	104	730	199	132	67	172*b*	65*b*	65*b*	42*b*
8. Building Materials	118	193	928	314	136	178	280*c*	104*c*	118*c*	58*c*
9. Light Metals and Electrical Products	160	115	1,130	203	116	87	172*d*	32*d*	90*d*	50*d*
10. Semi-Manufactured Metals and Engineering	249	155	976	278	170	108	207*e*	11*e*	95*e*	101*e*
11. Metal Extraction and Refining	303	281	2,244	462	142	320	173*f*	51*f*	74*f*	48*f*
							286*g*	68*g*	134*g*	84*g*
TOTAL: Manufacturing	248	193	1,107	330	172	158	293	81	128	84
Electric Light and Power	—	1,849	—	4,348	1,106	3,242	2,701*l*	—	—	—

a. Official rate depreciated by one-third.
b. Timber Products.
c. Stone, Cement, etc.
d. Miscellaneous.
e. Electrical Appliances.
f. Machinery.
g. Metal Works.
h. Includes rented premises and plant.
i. Excludes rented premises and plant.
j. Includes a small proportion of Unspecified Capital, but excludes Cash and Accounts.
k. The smallness of this figure is due to the exclusion of rented premises.
l. Includes Cash and Accounts.

TABLE 2

POWER PER OCCUPIED PERSON IN MANUFACTURING INDUSTRY

H.P.

Industry	*Rumania* 1937	*Hungary* 1937	*Canada* 1936	*Australia* 1936–37	*Palestine* 1937
	Power Installed	*Power Installed*	*Power Installed*	*Rated Horse Power of engines ordinarily in use*	*Power Installed*
(1)	(2)	(3)	(4)	(5)	(6)
1. Food, Drink, and Tobacco	3.7	5.9	3.4	3.8	1.7
2. Clothing and Bedding	0.4	0.3	0.5	0.3	0.1
3. Textiles	1.1	1.9	4.0	2.0	0.9
4. Leather, Fur, and Rubber	1.1	2.4	3.7	3.4	0.5
5. Chemicals	6.4	3.1	7.5	4.2	2.9
6. Paper, Stationery, and Printing	3.7	2.3	24.0	1.5	0.5
7. Furniture, Pottery and Glass, Miscellaneous	0.9	1.1	3.5	1.9	2.4*b*
8. Building Materials	2.1	2.7	10.9	4.8	2.4*c* 0.6*d*
9. Light Metal ElectricalProducts	1.6	2.1	3.7	1.4	1.0*e*
10. Semi-Manufactured Metals and Engineering	2.2	2.5	5.6	1.4	1.1*f*
11. Metal Extraction and Refining	7.1	7.4	26.5	7.7	1.3*g*
Total, Manufacturing	2.6	2.9	7.5	2.3	1.5
Electric Light and Power	—	77.8	—	306.6 (*h*)	53.2

b. Timber Products.
c. Stone, Cement, etc.
d. Miscellaneous.
e. Metal Works.
f. Machinery.
g. Electrical Appliances.
h. Rated horse-power of *total engines installed* in central stations.

TABLE 3

ANNUAL CONSUMPTION OF MATERIALS (INCLUDING FUEL AND ELECTRICITY) PER OCCUPIED PERSON IN MANUFACTURING INDUSTRY

£ sterling

Industry	*Rumania* 1937	*Hungary* 1937	*Canada* 1936	*Australia (h)* 1936–37	*Palestine (n)* 1936
	£1= 670.60 *lei*	£1=22.30 *pengõs (a)*	£1= $4.97	£1 = £A. 1.25	£1 = £P. 1
(1)	(2)	(3)	(4)	(5)	(6)
1. Food, Drink, and Tobacco	306	565	1,016	1,034	391
2. Clothing and Bedding	135	131	298	170	104
3. Textiles	218	172	416	355	124
4. Leather, Fur, and Rubber	268	275	478	589	154
5. Chemicals	488	323	1,014	708	240
6. Paper, Stationery, and Printing	136	126	413	206	75
7. Furniture, Pottery and Glass, Miscellaneous	49	90	283	235	125*b*
8. Building Materials	63	69	300	298	134*c*
9. Light Metal and Electrical Products	161	105	404	284	58*d* 181*e*
10. Semi-Manufactured Metals and Engineering	97	116	490	176	91*f*
11. Metal Extraction and Refining	381	274	1,763	1,159	143*g*
Total, Manufacturing	203	211	579	419	178
Electric Light and Power	—	184	—	404	—

Official rate depreciated by one-third.
b. Timber products.
c. Stone, Cement, etc.
d. Miscellaneous.
e. Electrical Appliances.
f. Machinery.
g. Metal Works.
h. Includes tools replaced and repairs to plant.
n. Includes contract work.

TABLE 4

ANNUAL CONSUMPTION OF FUEL AND ELECTRICITY PER OCCUPIED PERSON IN MANUFACTURING INDUSTRY

£ sterling

Industry	*Rumania* 1937	*Hungary* 1937	*Canada* 1936	*Australia* 1937–37	*Palestine* 1936
	£1= 670.60 *lei*	£1=22.30 *pengos* (*a*)	£1= $4.97	£1 = £A. 1.25	£1 = £P. 1
(1)	(2)	(3)	(4)	(5)	(6)
1. Food, Drink, and Tobacco	14	21	23	25	15
2. Clothing and Bedding	4	3	4	3	2
3. Textiles	7	10	20	14	5
4. Leather, Fur, and Rubber	5	11	17	18	2
5. Chemicals	32	25	77	38	11
6. Paper, Stationery, and Printing	14	12	74	9	3
7. Furniture, Pottery and Glass, Miscellaneous	10	13	22	11	4*b* 28*c* 9*d*
8. Building Materials	9	21	21	32	
9. Light Metal and Electrical Products	18	10	17	11	3*e*
10. Semi-Manufactured Metals and Engineering	10	13	18	7	4*f*
11. Metal Extraction and Refining	89	38	88	86	7*g*
Total, Manufacturing	15	14	30	17	10
Electric Light and Power	—	181	—	341	—

a. Official rate depreciated by one-third.
b. Timber Products.
c. Stone, Cement, etc.
d. Miscellaneous.
e. Electrical Applicances.
f. Machinery.
g. Metal Works.

TABLE 5

ANNUAL NET OUTPUT PER OCCUPIED PERSON, IN MANUFACTURING INDUSTRY

£ sterling

Industry	*Rumania* 1937	*Hungary* 1937	*Canada* 1936	*Australia* 1936–37	*Palestine* 1936
	£1= 670.60 *lei*	£1=22.30 *pengos* (*a*)	£1= $4.97	£1 = £A. 1.25	£1 = £P. 1
(1)	(2)	(3)	(4)	(5)	(6)
1. Food, Drink, and Tobacco	219	252	534	374	220
2. Clothing and Bedding	82	95	246	147	110
3. Textiles	100	115	324	188	116
4. Leather, Fur, and Rubber	77	147	477	250	161
5. Chemicals	331	257	728	538	198
6. Paper, Stationery, and Printing	184	147	503	274	153
7. Furniture, Pottery and Glass, Miscellaneous	81	98	337	225	173*b* 194*c* 149*d*
8. Building Materials	66	82	285	267	
9. Light Metal and Electrical Products	150	121	450	230	143*e*
10. Semi-Manufactured Metals and Engineering	106	145	393	227	147*f*
11. Metal Extraction and Refining	256	165	866	446	187*g*
Total, Manufacturing	142	147	437	262	175
Electric Light and Power	—	367	—	1,094	—

a. Official rate depreciated by one-third.
b. Timber Products.
c. Stone, Cement, etc.
d. Miscellaneous.
e. Electrical Appliances.
f. Machinery.
g. Metal Works.

TABLE 6

ANNUAL GROSS OUTPUT PER OCCUPIED PERSON IN MANUFACTURING INDUSTRY

£ sterling

Industry	*Rumania* 1937	*Hungary* 1937	*Canada* 1936	*Australia* 1936–37	*Palestine* 1936
	£1= 670.60 *lei*	£1=22.30 *pengos* (*a*)	£1= $4.97	£1 *stg.*= £A. 1.25	£1 *stg.* = £P. 1
(1)	(2)	(3)	(4)	(5)	(6)
1. Food, Drink, and Tobacco	525	817	1,550	1,408	611
2. Clothing and Bedding	217	227	544	317	214
3. Textiles	318	287	740	543	240
4. Leather, Fur, and Rubber	345	421	955	839	315
5. Chemicals (incl. Gas)	819	580	1,742	1,246	438
6. Paper, Stationery, and Printing	320	273	916	480	228
7. Furnishing, Pottery and Glass, Miscellaneous	130	188	620	460	298*b*
8. Building Materials	129	151	585	565	328*c*
9. Light Metal and Electrical Products	311	227	854	514	207*d* 324*e*
10. Semi-manufactured Metals and Engineering	203	261	883	403	238*f*
11. Metal Extraction and Refining	637	439	2,629	1,605	330*g*
Total, Manufacturing	345	357	1,016	681	353
Electric Light and Power	—	525	—	1,498	426

a. Official rate depreciated by one-third.
b. Timber Products.
c. Stone, Cement, etc.
d. Miscellaneous.
e. Electrical Appliances.
f. Machinery.
g. Metal Works.

APPENDIX C

Calculation of the Derived Demand

(All money figures in £ million)

THE Derived Demand from each industry for the products of all the others was calculated from the Production Programme according to certain rules which were stated in the text, pp. 49-53. To illustrate procedure, we give in this Appendix two examples.

Let each group be denoted by its letter or number; let the Grand Total of the derived demand from each industrial group be GT; let the total of Materials Consumed as given in the Production Programme be M; let any arbitrary allowance be ay; and let each figure in the Production Programme Tables (Model II and Model IV, Part B) be denoted by the column number in brackets, followed by the line number or letter, thus—

(8)4 = column 8, line 4; (4)A = column 4, line A (i.e. line A1 plus line A2); (3)x = column 3, line x.

Then, as stated in the text, the demand *for* the various products (A, B, C, 10, etc.) is:

A = 0.9 ((8)x + any additional ay).
B = 0.9 (4% (3)x + 1% (9)x + any additional ay).
C = GT—(A + B + D + E).
D = 0.9 (17%[1] (9)x) + 10% GT + any additional ay.
E = ay.
GT = M + $\frac{1}{09}$ B[2] + 8% (4)x + 17%[2] (9)x.
M = (7)x.

C. *Subdivisions*

10 = 0.9 (8% (4)x + 4% (9)x) + any additional ay.
1 to 9, 11 = ay.

To illustrate—The Derived Demand originating in Model II from Building and Construction and from the Textile Industry was obtained as follows from the Production Programme and from arbitrary allocations:

(1) *Column B, Building and Construction.*

A = 0.9 ((8)B + ay) = 0.9 (1.00 + 0.60) = 0.9 (1.60) = 1.45, to nearest 0.05. The ay is for minerals such as stone, sand, etc.

[1] 17 per cent for columns A to C; 13 per cent for column D.
[2] Excluding Duplication in column B.

B = 0.9 (4% (3)B + 1% (9)B + ay) = 0.9 (4% 12.00 + 1% 30.00 + 7.50) = 0.9 (0.48 + 0.30 + 7.50) = 0.9 (8.28) = 7.45. The ay is for duplication due to sub-contracting, taken as $\frac{1}{4}$M.

C = GT — (A + B + D + E) = 36.70 — (1.45 + 7.45 + 8.25) = 36.70 — 17.15 = 19.55.

D = 0.9 (17% (9)B) + 10% GT = 17% 30.00 + 10% 36.70 = 4.59 + 3.67 = 8.25.

E = —

Gt = M + $\frac{1}{0\,9}$ (B — duplication) + 8% (4)B + 17% (9)B = 30.00 + 0.78 + 8% 10.00 + 17% 30.00 = 30.00 + 0.78 + 0.80 + 5.10 = 36.70.

M = (7)B = 30.00.

1 = —

2 = —

3 = ay = 0.05.

4 = ay = 0.05.

5 = ay = 1.30 (includes paints, etc.).

6 = ay = 0.25 (includes wall-paper, etc., as well as office requirements of the industry).

7 = ay= 1.50 (mainly glass and small articles).

8 = ay= 10.50 (building materials generally).

9 = ay = 0.70 (mainly electrical supplies and other small articles).

10 = 0.9 (8% (4)B + 4% (9)B) + ay = 0.9 (8% 10.00 + 4% 30.00) + 3.40 = 0.9 (0.80 + 1.20) + 3.40 = 1.80 + 3.40 = 5.20 (ay for girders and other construction materials).

11 = 0.

(2) *Column* 3, *Textiles.*

A = 0.9 ((8)3) = 0.9 (0.70) = 0.65.

B = 0.9 (4% (3)3 + 1% (9)3) = 0.9 (4% 4.30 + 1% 7.20) = 0.9 (0.172 + 0.072) = 0.9 (0.244) = 0.20.

C = GT — (A + B + D + E) = 16.35 — (0.65 + 0.20 + 3.75 + 3.75) = 16.35 — 7.35 = 9.00.

D = 0.9 (17% (9)3) + 10% GT = 0.9 (17% 7.20) + 10% 16.35 = 1.10 + 1.635 = 2.75.

E = ay = 3.75 (the bulk of C + E after deducting the 7.00 of duplication).

GT = M + $\frac{1}{0\,9}$B + 8% (4)3 + 17% (9)3 = 14.40 + 0.244 = 8% 5.80 + 17% 7.20 = 14.40 + 0.244 + 0.464 + 1.224 = 16.35.

M = (7)3 = 14.40.

1 = —

2 = —

3 = ay = 7.00 (duplication, in the Balkan countries before the present war about $\frac{1}{2}$M).

4 = 0.

5 = ay = 1.10 (mainly dyes).

6 = ay = 0.15.

7 = ay = 0.05.

8 = —

9 = —

10 = 0.9 (8% (4)3 + 4% (9)3) = 0.9 (8% 5.80 + 4% 7.20) = 0.9 (0.464 + 0.288) = 0.9 (0.754) = 0.70.

11 = —

APPENDIX D

ESTIMATES OF DEMAND IN MODEL IV

TABLE 1—DIVISION OF NET OUTPUT

Category	*Per Cent*	*£ million*[1]
Wages and Salaries	38	46.5
Profits (after *corporate* taxation)	30	37.0
Corporate Savings	6	7.5
Corporate Taxation	10	12.0
Duplication[2]	16	19.5
TOTAL	100	122.5

[1] Average annual additions in round figures.
[2] Including replacement allowances (9 per cent) and miscellaneous expenses such as insurance and advertising (7 per cent).

TABLE 2—ANNUAL ADDITION TO EXPENDITURE OF WAGE- AND SMALL SALARY-EARNERS ON GOODS AND SERVICES MODEL IV

Item	*Spent by W.- and S.-Earners*		*'Margin'*	*Received by Producers*
(1)	*Per Cent* (2)	*£ Million* (3)	*£ Million* (4)	*£ Million* (5)
A. GOODS				
I. *Consumption*				
Food: (1) Processed	35	16.25	3.95	12.30
(2) Unprocessed	15	6.95	1.35	5.60
Clothing and Bedding	10	4.65	0.90	3.75
Textile Materials, etc.	3	1.40	0.25	1.15
Furniture and Household Goods	3	1.40	0.25	1.15
Mineral Fuel and Electricity	3	1.40	0.25	1.15
Firewood	2	0.95	0.20	0.75
Miscellaneous Goods	3	1.40	0.25	1.15
SUB-TOTAL: Consumption	74	34.40	7.40	27.00
II. *Capital*				
Rent (incl. rates, except in last column)	11	5.10	1.00	4.10
Savings	3	1.40	—	1.40
SUB-TOTAL: Capital	14	6.50	1.00	5.50
A. SUB-TOTAL: Goods	88	40.90	8.40	32.50
B. SERVICES				
Direct taxes	2	0.95	—	0.95
'Margin'	—	—	—	9.00
'Fees'	10	4.65	0.60	4.05
B. SUB-TOTAL: Services	12	5.60	0.60	14.00
GRAND TOTAL	100	46.50	9.00	46.50

NOTE.—The 'margin' consists of that part of retail prices which represents distribution, transport and indirect taxation. 'Fees' are direct payments for services from family budgets.

TABLE 3

ANNUAL ADDITION TO EXPENDITURE OF 'PROFIT-EARNERS' ON GOODS AND SERVICES

MODEL IV

Item	*Spent by Profit-Earners*		*'Margin'*	*Received by Producers*
	Per Cent	*£ Million*	*£ Million*	*£ Million*
(1)	(2)	(3)	(4)	(5)
A. GOODS				
I. *Consumption*				
Food: (1) Processed	20	7.40	1.95	5.45
(2) Unprocessed	8	2.95	0.65	2.30
Clothing and Bedding	9	3.35	0.70	2.65
Textile Materials, etc.	2	0.75	0.15	0.60
Furniture and Household Goods	6	2.20	0.50	1.70
Mineral Fuel and Electricity	4	1.50	0.30	1.20
Firewood	1	0.35	0.10	0.25
Miscellaneous Goods	6	2.20	0.50	1.70
SUB-TOTAL: Consumption	56	20.70	4.85	15.85
II. *Capital*				
Rent (incl. rates, except in last column)	10	3.70	0.80	2.90
Savings	12	4.45	—	4.45
SUB-TOTAL: Capital	22	8.15	0.80	7.35
TOTAL: Goods	78	28.85	5.65	23.20
B. SERVICES				
Direct taxes	7	2.60	—	2.60
'Margin'	—	—	—	6.40
'Fees'	15	5.55	0.75	4.80
TOTAL: Services	22	8.15	0.75	13.80
GRAND TOTAL	100	37.00	6.40	37.00

NOTE.—The 'margin' consists of that part of retail prices which represents distribution, transport and indirect taxation. 'Fees' are direct payments for services from family budgets.

TABLE 4

DERIVED DEMAND, MODEL IV

AVERAGE ANNUAL ADDITION

£ million

From—	*A*	*B*	*C*	*Total A to C*	*D*	*Total A to D*
For—						
A. Minerals and Electricity	0.80	1.45	14.15	16.40	1.90	18.30
B. Building and Construction	0.50	7.45	1.70	9.65	2.05	11.70
C. Manufacturing	2.60	19.55	42.10	64.25	24.00	88.25
D. Services	1.75	8.25	18.00	28.00	9.45	37.45
E. Agriculture	—	—	22.85	22.85	—	22.85
Total: A to C	3.90	28.45	57.95	90.30	27.95	118.25
Total: A to D	5.65	36.70	75.95	118.30	37.40	155.70
Total: A to E	5.65	36.70	98.80	141.15	37.40	178.55
1. Food, Drink, and Tobacco	—	—	1.00	1.00	—	1.00
2. Clothing and Bedding	—	—	0.35	0.35	1.75	2.10
3. Textiles	—	0.05	7.75	7.80	1.60	9.40
4. Leather, Fur, and Rubber	—	0.05	2.90	2.95	2.75	5.70
5. Chemicals (incl. Gas, Coke, and Petrol)	—	1.30	7.80	9.10	5.70	14.80
6. Paper, Stationery, and Printing	0.05	0.25	2.85	3.15	4.25	7.40
7. Furniture and Woodwork, Misc., etc.	0.15	1.50	3.60	5.25	3.25	8.50
8. Building Materials (incl. Timber)	0.50	10.50	2.90	13.90	0.60	14.50
9. Light Metal and Electrical Products	0.10	0.70	1.55	2.35	1.25	3.60
10. Semi-Man. Metals and Engineering	1.80	5.20	9.70	16.70	2.85	19.55
11. Metal Extraction and Refining	—	—	1.70	1.70	—	1.70
TOTAL: Manufacturing	2.60	19.55	42.10	64.25	24.00	88.25

DERIVED DEMAND, MODEL IV—*continued*

From— / *For*—	1	2	3	4	5	6	7	8	9	10	11	*Total*
A. Minerals and Electricity	0.55	0.20	0.35	0.20	4.25	0.35	1.70	4.75	0.20	0.55	1.05	14.15
B. Building and Construction	0.25	0.15	0.10	0.05	0.25	0.15	0.15	0.25	0.10	0.25	0	1.70
C. Manufacturing	4.40	5.60	4.90	1.35	7.45	2.65	4.35	2.15	3.10	5.90	0.25	42.10
D. Services	3.10	1.40	1.50	0.85	2.75	1.45	1.55	2.45	0.85	1.85	0.25	18.00
E. Agriculture	12.00	0.15	2.00	3.25	1.00	1.25	0	3.20	—	—	—	22.85
Total: A to C	5.20	5.95	5.35	1.60	11.95	3.15	6.20	7.15	3.40	6.70	1.30	57.95
Total: A to D	8.30	7.35	6.85	2.45	14.70	4.60	7.75	9.60	4.25	8.55	1.55	75.95
Total: A to E	20.30	7.50	8.85	5.70	15.70	5.85	7.75	12.80	4.25	8.55	1.55	98.80
1. Food, Drink, and Tobacco	1.00	—	—	—	—	—	—	—	—	—	—	1.00
2. Clothing and Bedding	—	0.35	—	—	—	—	—	—	—	—	—	0.35
3. Textiles	0.10	3.20	3.75	—	0.10	0.10	0.25	0.05	0.10	0.10	—	7.75
4. Leather, Fur, and Rubber	0.10	1.40	—	0.60	0.20	0.05	0.15	0.05	0.05	0.30	—	2.90
5. Chemicals (incl. Gas, Coke, and Petrol)	0.45	0.20	0.65	0.45	5.20	0.20	0.15	0.20	0.05	0.15	0.10	7.80
6. Paper, Stationery, and Printing	0.50	0.05	0.10	0.05	0.15	1.70	0.10	0.10	0.05	0.05	—	2.85
7. Furniture and Woodwork, Pottery and Glass, Misc.	1.05	0.10	0.05	0.05	0.25	0.10	1.35	0.10	0.25	0.30	—	3.60
8. Building Materials (incl. Timber)	—	—	—	—	0.25	—	1.80	0.80	—	—	0.05	2.90
9. Light Metal Electrical Products	0.55	0.05	—	0.05	0.20	—	0.25	0.05	0.30	0.05	0.05	1.55
10. Semi-Manufactured Metals and Engineering	0.65	0.25	0.35	0.15	1.10	0.50	0.30	0.80	2.30	3.25	0.05	9.70
11. Metal Extraction and Refining	—	—	—	—	—	—	—	—	—	1.70	—	1.70
TOTAL: Manufacturing	4.40	5.60	4.90	1.35	7.45	2.65	4.35	2.15	3.10	5.90	0.25	42.10

TABLE 5—TOTAL DEMAND ON CURRENT ACCOUNT—MODEL IV

Av. Annual Addition. £ million.

I. Summary

Demand for Products of Groups	*Direct Demand from*		*Derived Demand from*		*Total*
	Wage- and Salary-Earners	*Profit Earners*	*Industry (A to C)*	*Services[1] (D)*	
(1)	(2)	(2)	(4)	(5)	(6)
A. Minerals and Electricity	1.15	1.20	16.40	1.90	20.65
B. Building and Construction	4.10[3]	2.90[3]	9.65[4]	2.05[5]	18.70
C. Manufacturing	19.50	12.10	64.25	24.00	119.85
D. Services[1]	14.00	13.80	28.00	9.45	65.25
E. Agriculture[2]	6.35	2.55	22.85	—	31.75
TOTAL, A to C	24.75	16.20	90.30	27.95	159.20
TOTAL, A to D	38.75	30.00	118.30	37.40	224.45
TOTAL, A to E	45.10	32.55	141.15	37.40	256.20
II. Details, Minerals and Electricity					
1. Electricity and Fuel[6]	1.15	1.20	7.70	1.90	11.95
2. Other Non-Metallic Minerals	—	—	7.70	—	7.70
3. Metallic Minerals	—	—	1.00	—	1.00
TOTAL	1.15	1.20	16.40	1.90	20.65
III. Details, Manufacturing					
1. Food, Drink, and Tobacco	12.30	5.45	1.00	—	18.75
2. Clothing and Bedding	3.75	2.65	0.35	1.75	8.50
3. Textiles	1.15	0.60	7.80	1.60	11.15
4. Leather, Fur, and Rubber	0.05	0.20	2.95	2.75	5.95
5. Chemicals (incl. Gas, Coke, and Petrol)	0.65	0.65	9.10	5.70	16.10
6. Paper, Stationery, and Printing	0.45	0.60	3.15	4.25	8.45
7. Furniture and Woodwork, Pottery and Glass, Misc.	0.75	1.35	5.25	3.25	10.60
8. Building Materials (incl. Timber)	—	—	13.90	0.60	14.50
9. Light Metal and Electrical	0.40	0.55	2.35	1.25	4.55
10. Semi-Manufactured Metals and Engineering	—	0.05	16.70	2.85	19.60
11. Metal Extraction and Refining	—	—	1.70	—	1.70
TOTAL	19.50	12.10	64.25	24.00	119.85
IV. Details, Agriculture					
1. Foodstuffs (incl. Tobacco)	5.60	2.30	12.00	—	19.90
2. Other Materials (incl. Timber and Firewood)	0.75	0.25	10.85	—	11.85
TOTAL	6.35	2.55	22.85	—	31.75

[1] All industries other than A to C and E. [2] Includes forestry and fisheries.
[3] Rents and their equivalents. Part of these payments do not correspond to building costs. On the other hand, central and local governments will probably subsidise housing and amenities.
[4] Replacement allowances. [5] Replacement allowances, plus upkeep of roads, bridges, etc.
[6] Includes coal used for chemical purposes.

TABLE 6
DEMAND ON CAPITAL ACCOUNT
MODEL IV
£ million

Capital Requirements (incl. Land)	*Annual Addition*	*Total, Five Years*
1. Industrial and Service Capital	234	1,170
2. New Dwellings and Public Works	86	430
3. Allowance for Land on (2)	22	110
TOTAL	342	1,710

TABLE 7
SUBDIVISION OF DEMAND ON CAPITAL ACCOUNT FOR PRODUCTS OF ECONOMIC GROUPS (TOTAL, FIRST FIVE-YEAR PLAN)
MODEL IV
£ million

I. SUMMARY

Demand for Products of Groups	*Demand on Account of:*			*Total*
	Land and Buildings	*Plant and Machinery*	*Working Capital*	
(1)	(2)	(3)	(4)	(5)
A. Minerals and Electricity	—	—	27.75	27.75
B. Building and Construction	765.00	—	33.75	798.75
C. Manufacturing	—	475.50	180.30	655.80
E. Agriculture	—	—	32.70	32.70
F. Land	194.00	—	—	194.00
TOTAL, A to C	765.00	475.50	241.80	1,482.30
TOTAL, A to E	765.00	475.50	274.50	1,515.00
TOTAL, A to F	959.00	475.50	274.50	1,709.00[1]
II. DETAILS, MANUFACTURING				
1. Food, Drink, and Tobacco	—	—	12.00	12.00
2. Clothing and Bedding	—	—	9.75	9.75
3. Textiles	—	—	19.95	19.95
4. Leather, Fur, and Rubber	—	—	10.05	10.05
5. Chemicals (incl. Gas, Coke, and Petrol)	—	—	29.55	29.55
6. Paper, Stationery, and Printing	—	—	13.05	13.05
7. Furniture and Woodwork, Pottery and Glass, Miscellaneous	—	0.75	15.75	16.50
8. Building Materials (incl. Timber)	—	15.00	30.30	45.30
9. Light Metal and Electrical Products	—	19.50	8.40	27.90
10. Semi-Manufactured Metals and Engineering	—	440.25	28.65	468.90
11. Metal Extraction and Refining	—	—	2.85	2.85
TOTAL	—	475.50	180.30	655.80

[1] The discrepancy with the £1,710 million in Table 6 is due to rounding-off.

TABLE 8

AGGREGATE DEMAND FOR FIVE YEARS

MODEL IV

	£ *Million*		£ *Million*
A. Current Account[1] - - -	3,843.00		
Less Replacement of Buildings, etc.[2] -	179.25		
Replacement of Plant and Machinery[3]	102.75		
	3,561.00	or say	3,560
B. Capital Account - - - -			1,710
GRAND TOTAL - - -			5,270

[1] Current Account figures are obtained by multiplying those of Table 5 by 15 (arithmetical progression over 5 years).
[2] Contained in col. 6, line B, of Table 5.
[3] Contained in col. 6, line 10, of Table 5.

APPENDIX E

Elimination of Discrepancies

THE figures given in the Circular Flow on page 78 differ in some instances from those in the final Tables of Model IV. These discrepancies are dealt with below.

Items 3 (Gross Output), 4 (Materials Consumed), and 5 (Net Output I), as presented in the Circular Flow, have been taken without correction from the Production Programme, Table XXII; the relevant figures in columns 10, 7, and 9 of that Table are multiplied by 15.

Item 2, equal to item 17 in the Circular Flow—the Demand on Capital Account—has been taken, again without change, from Table XXIV, col. 3, Total A to E.

Item 13 (Derived Demand) is the sum of item 4 (Materials Consumed) and item 6 (Miscellaneous Expenses, etc.). Derived Demand amounts in the Circular Flow to £2,645.5 million, equal to an annual addition of £176.4 million. The relevant figure in Table 4 (Appendix D) is £178.55 million which for five years works out at £2,677.25 million.

The difference of about 30 million for five years is due (*a*) to the inclusion of only part of Corporate Taxation in item 6 of the Circular Flow; the remainder—£18.5 million—forms item 10 (Government Investment out of Corporate Taxation). In our Tables, however, the whole of Corporate Taxation has been included, for convenience, in Derived Demand, as stated in footnote (1), p. 41.

The remaining discrepancy is due (*b*) to the way in which we have calculated Derived Demand in the relevant Table 4 (Appendix D), see footnote (2), p. 77.

Item 8 (Income Paid Out) and 9 (Corporate Savings) account for 68 per cent and 6 per cent respectively of Net Output I, as indicated in Table 1 (Appendix D). Our figures in the Circular Flow are based on these percentages. But the absolute figures in Table 1, Appendix D (where Net Output is taken as £122.5 million) have been rounded off with the result that they exceed the correct figures, as given in the Circular Flow, by £0.3 million p.a. in the case of Income Paid Out, and by £0.2 million p.a. in the case of Corporate Savings; the discrepancy adds up for five years to £7.5 million.

These differences explain all other discrepancies which are eliminated in the Circular Flow.